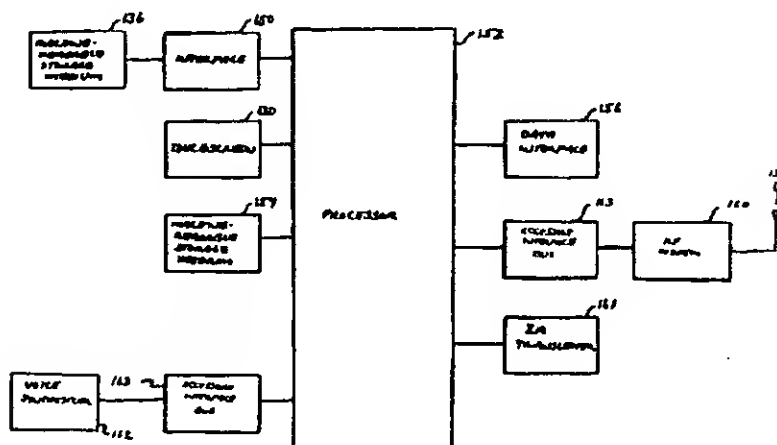


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(21) International Application Number: <b>PCT/US96/19711</b> (22) International Filing Date: 11 December 1996 (11.12.96) (30) Priority Data: 08/572,601 14 December 1995 (14.12.95) US (71) Applicant: <b>MOTOROLA INC. {US/US}; 1303 East Algonquin Road, Schaumburg, IL 60196 (US).</b> (71)(72) Applicant and Inventor: <b>JAMBHEKAR, Shrirang, N. {IN/US}; 1810 Hemlock Place #310, Schaumburg, IL 60173 (US).</b> (72) Inventors: <b>HUFFMAN, James, R.; 4 Stegner Lane, Austin, TX 78746 (US). CRUICKSHANK, Ronald, D.; 7115 Calais Drive, Durham, NC 27712 (US). COLLINS, Russell, L.; 11705 Onion Hollow Run, Austin, TX 78739 (US).</b> (74) Agents: <b>INGRASSIA, Vincent, B. et al.; Motorola Inc., Intellectual Property Dept., P.O. Box 10219, Scottsdale, AZ 85271-0219 (US).</b>			(81) Designated States: <b>AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, UG, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).</b>  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

(54) Title: **ELECTRONIC BOOK AND METHOD OF CAPTURING AND STORING A QUOTE THEREIN**

## (57) Abstract

A method of capturing and storing a quote in an electronic book includes reading machine-readable data from a removable machine-readable storage medium (136) installed in the electronic book, and displaying text of a book represented by the machine-readable data. A user-initiated event is received in which a portion of the text is selected. Quote data representative of the portion of the text is stored in an internal machine-readable storage medium (154) within the electronic book. Source data representative of at least one of an author of the book and a title of the book is also stored in the internal machine-readable storage medium (154). The quote data and the source data are maintained in the internal machine-readable storage medium (154) when the removable machine-readable storage medium (136) is removed from the electronic book.

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0 ELECTRONIC BOOK AND METHOD OF CAPTURING  
AND STORING A QUOTE THEREIN

Related Invention

5 The present invention is related to the  
following invention which is assigned to the same  
assignee as the present invention:

"System and Method for Limiting Access to a Book  
10 Card", having Serial No. 08/572,346, filed December  
14, 1995.

"Apparatus and Method for Storing and Presenting  
Text", having Serial No. 08/572,451, filed December  
14, 1995.

15 "Method and Electronic Book for Creating a  
Plurality of Versions of a Book", having Serial No.  
08/572,485, filed December 14, 1995.

"Electronic Book Diary and Method For Use  
Therefore", having Serial No. 08/572,602, filed  
20 December 14, 1995.

"Method and Device for Inhibiting the Operation  
of an Electronic Device During Take-Off and Landing  
of an Aircraft", having Serial No. 08/572,603, filed  
December 14, 1995.

25 "System for Inhibiting the Operation of an  
Electronic Device During Take-Off and Landing of an  
Aircraft", having Serial No. 08/572,484, filed  
December 14, 1995.

"Method for Abridging Text", having Serial No.  
30 08/572,834, filed December 14, 1995.

"A Method of Substituting Names in an Electronic  
Book", having Serial No. 08/572,480, filed December  
14, 1995.

0 "System and Method of Authoring Tools for an  
Electronic Book", having Serial No. 08/572,358, filed  
December 14, 1995.

"System and Method for an Automatic Library for  
a Plurality of Book Cards", having Serial No.  
5 08/572,482, filed December 14, 1995.

"Electronic Book and Method of Selecting a  
Primary Font and a Primary Size for Displaying Text  
Therewith", having Serial No. 08/572,407, filed  
December 14, 1995.

10 "Electronic Book and Graphical User Interface  
for Selecting a Book to Read Therewith", having  
Serial No. 08/572,406, filed December 14, 1995.

"Electronic Book and Graphical User Interface to  
Provide Control Thereof", having Serial No.  
15 08/572,403, filed December 14, 1995.

"Electronic Book and Method of Storing at Least  
One Book in an Internal Machine-Readable Storage  
Medium", having Serial No. 08/572,593, filed December  
14, 1995.

20 "Electronic Book and Method of Annotation  
Therefor", having Serial No. 08/572,367, filed  
December 14, 1995.

"Electronic Book and a Method of Displaying a  
Relative Position of a Current Page of a Book  
25 Therefor", having Serial No. 08/572,373, filed  
December 14, 1995.

"Method and System for Encoding a Book for  
Reading Using an Electronic Book", having Serial No.  
08/572,468, filed December 14, 1995.

30 "Electronic Book and Method of Displaying an  
Animated Page Turn Therefor", having Serial No.  
08/572,405, filed December 14, 1995.

0 "Electronic Book and Method of Controlling a  
Rate of Information Displayed Thereby", having Serial  
No. 08/572,372, filed December 14, 1995.

"Reusable Housing and Memory Card Therefor",  
having Serial No. 08/572,413, filed December 14,  
5 1995.

"Electronic Book and Method of Displaying at  
Least One Reading Metric Therefor", having Serial No.  
08/572,842, filed December 14, 1995.

"Electronic Book and Method of Creating a  
10 Personal Log of Reading Activity Therefor", having  
Serial No. 08/572,456, filed December 14, 1995.

"Electronic Book Having Highlighting Feature",  
having Serial No. 08/572,469, filed December 14,  
1995.

15 The subject matter of the above-identified  
related inventions are hereby incorporated by  
reference into the disclosure of this invention.

#### Field of the Invention

20

The present invention relates to electronic  
books having the look and feel of real paper books  
and methods of capture and storing a quote therein.

25

#### Background of the Invention

Various types of hand-held electronic reading  
devices have been proposed to electronically display  
textual information for reading by a user. A typical  
30 hand-held electronic reading device includes a  
display device to display the textual information and  
a user interface which allows a user to navigate  
through the textual information and access various  
features of the electronic reading device. The

0 display device and the user interface are  
incorporated in a hand-held housing to facilitate  
portability of the electronic reading device.

Many hand-held electronic reading devices have a  
user interface in the form one or more external  
5 buttons. The buttons are depressed in a  
predetermined manner either to navigate through the  
textual information or to access various features of  
the device. However, many hand-held electronic  
reading devices implement the user interface in a  
10 manner which does not provide a simple, intuitive, or  
efficient method for navigating the textual  
information or for accessing the features.

The lack of simplicity of using current hand-  
held electronic reading devices along with the lack  
15 of comfort in handling many of these devices result  
in some people preferring to read a real paper book  
rather than using a hand-held electronic reading  
device.

Further, current hand-held electronic reading  
20 devices are limited in their ability to internally  
store and recall portions of the textual information.  
U.S. Patent No. 5,239,665 to Tsuchiya discloses an  
electronic book having an interface which receives an  
external memory, such as a floppy disk or a laser  
25 card, containing the textual information. A random  
access memory (RAM) within the electronic book  
functions to tentatively store a part of the content  
of the external memory. The part of the content is  
stored in the RAM so that a reader is not required to  
30 wait an excessive amount of time to view a display of  
a subsequent piece of information. Tsuchiya teaches  
that the amount of information to be transferred from  
the external memory to the RAM is dependent upon the  
speed at which a reader can read a book. As a

0 result, the user has limited control, if any, with regard to storing and recalling portions of the textual information.

#### Brief Description of the Drawings

5 The invention is pointed out with particularity in the appended claims. However, other features of the invention will become more apparent and the invention will be best understood by referring to the following detailed description in conjunction with  
10 the accompanying drawings in which:

FIG. 1 is a view of an embodiment of an electronic book in a closed position;

15 FIG. 2 is a view of the embodiment of the electronic book of FIG. 1 in an open position;

FIG. 3 is a block diagram of an embodiment of the electronic book;

20 FIG. 4 is an illustration of various hot spot locations used to provide control of the electronic book to a user;

FIG. 5 is an illustration of a library screen display using an embodiment of the electronic book;

25 FIG. 6 is an illustration of a user-initiated event to open the desired book from the library screen;

FIG. 7 is an illustration of a first page of a book displayed on an embodiment of the electronic book;

30 FIG. 8 is an illustration of a title page of a book displayed on an embodiment of the electronic book;

FIG. 9 is an illustration of a font selection page displayed on an embodiment of the electronic book;

0        FIG. 10 is an illustration of the title page of the book which is displayed upon exiting the font selection page;

      FIG. 11 is an illustration of a system control page displayed in an embodiment of the electronic  
5    book;

      FIG. 12 is an illustration of the title page of the book which is displayed upon exiting the system control page;

      FIG. 13 is an illustration of the title page of  
10   the book wherein a radio frequency link option is selected;

      FIG. 14 is an illustration of the title page of the book wherein a pacing control option is selected by a user;

15        FIG. 15 is an illustration of a pacing control page displayed in an embodiment of the electronic book;

      FIG. 16 is an illustration of the title page of the book which depicts other user-initiated options;

20        FIG. 17 is an illustration of a page marked by a dog ear for use in embodiments of the electronic book;

      FIG. 18 is an illustration of a dog ear dialog box used in embodiments of the electronic book;

25        FIG. 19 is an illustration of a user selecting a portion of a page of text;

      FIG. 20 is an illustration of an option selection dialog box used in embodiments of the electronic book;

30        FIG. 21 is an illustration of an annotation display used in embodiments of the electronic book;

      FIG. 22 is an illustration of a marker used to indicate that a page has an annotation associated therewith;



0        FIG. 23 is an illustration of a user selecting a set bookmark option in the option selection dialog box;

         FIG. 24 is an illustration of the page of FIG. 23 having a bookmark displayed thereon;

5        FIG. 25 is a flow diagram of an event loop performed in an embodiment of the electronic book;

         FIG. 26 is a flow diagram of steps performed in an embodiment of a library graphical user interface routine for use in the electronic book;

10       FIGS. 27 and 28 show flow diagrams of an embodiment of the routine to display pages of text in the electronic book;

         FIG. 29 is a flow diagram of steps performed to display a current page in the electronic book;

15       FIG. 30 is a flow diagram of steps performed in an embodiment of an annotation subroutine;

         FIG. 31 is a flow diagram of steps performed in an embodiment of a quote capture subroutine;

20       FIG. 32 is a flow diagram of steps performed in an embodiment of a dog ear subroutine;

         FIG. 33 is a flow diagram of steps performed in an embodiment of a pacing control subroutine;

         FIG. 34 is a flow diagram of steps performed in an embodiment of the font selection subroutine; and

25       FIG. 35 is a flow diagram of steps performed in an embodiment of the system control subroutine.

#### Detailed Description of a Preferred Embodiment

30       Embodiments of the present invention advantageously provide an electronic book with a quotable quotes feature which allows a user to select a passage from a book being read, and save that passage to a memory internal to the electronic book

0 for later recall. As a result, the passage can be recalled regardless of whether an external memory containing the book is installed in the electronic book. The passage which is written to the internal memory automatically includes source information such  
5 as the title and the author of the book. This is beneficial in allowing for quotes from multiple sources to be simultaneously stored in the internal memory.

FIG. 1 is a view of an embodiment of an  
10 electronic book in a closed position. The electronic book has a book-shaped housing 100 having the look and feel of a real, paper book. The book-shaped housing 100 has a first housing member 102 pivotably connected to a second housing member 104 to  
15 facilitate opening and closing in a book-like manner. The first housing member is partially formed by a book-like, front cover member 106. In a similar manner, the second housing member 104 is partially formed by a book-like, back cover member 108. The  
20 front cover member 106 and the back cover member 108 are pivotably connected by a spine member 110.

To better provide the look and feel of a real book, the front cover member 106 and the back cover member 108 have an exterior made of a material used  
25 in real book covers. Examples of such a material include, but are not limited to, leather, simulated leather, vinyl, and a woven fabric such as cotton. The exterior can either be permanently affixed to the front cover member 106 and the back cover member 108,  
30 or be in the form of a removable jacket.

In addition to the front cover member 106, the first housing member 102 is partially defined by an enclosure 112. Similarly, the second housing member 104 is partially defined by an enclosure 114 in

0 addition to the back cover member 108. When the  
electronic book is in the closed position, the  
enclosure 112 and the enclosure 114 have an external  
appearance of edges of pages of a real, paper book.  
In particular, the enclosures 112 and 114 define a  
5 top edge 116, a bottom edge 118, and a foredge 120  
which appear as the top edge, the bottom edge, and  
the foredge, respectively, of a real, paper book.  
The top edge 116, the bottom edge 118, and the  
foredge 120 are recessed with respect to the front  
10 cover member 106 and the back cover member 108.

FIG. 2 is a view of the embodiment of the  
electronic book of FIG. 1 in an open position. It is  
preferred that the first housing member 102 and the  
second housing member 104 be substantially symmetric  
15 so that the front cover member 106, the back cover  
member 108, and the spine member 110 rest  
substantially flat on a flat surface in the open  
position. The substantial symmetry makes the  
electronic book feel like a real, paper book being  
20 opened to one of its middle pages. As a result, the  
electronic book can be comfortably held and read in a  
manner consistent with a paper book.

A touchscreen 130 is integrated in the book-  
shaped housing 100 to be accessible when the book-  
25 shaped housing 100 is opened in the book-like manner.  
In the embodiment illustrated in FIG. 2, the  
touchscreen 130 is integrated with the enclosure 114  
of the second housing member 104. Optionally, a  
second touchscreen 132 can also be integrated in the  
30 book-shaped housing. As illustrated, the second  
touchscreen 132 can be integrated with the enclosure  
112 of the first housing member 102.

The touchscreen 130 and the second touchscreen  
132 each include a touch-sensitive panel over a

0 display device. Behind the display device can be a  
backlighting element.

The touchscreen 130 and the second touchscreen  
132 may provide either a color display or a  
monochrome display depending on a particular model of  
5 the electronic book. To provide their touch  
sensitivity, the touchscreen 130 and the second  
touchscreen 132 can utilize analog resistive  
technology as is known in the art. It is noted,  
however, that other technologies for providing touch  
10 sensitivity can also be utilized.

It is preferred that the touchscreen 130 and the  
second touchscreen 132 be capable of providing  
backlighting to allow use of the electronic book in  
poorly-lit or dimly-lit environments. More  
15 preferably, the touchscreen 130 is capable of  
backlighting selected portions or subsets of the  
entire touchscreen 130. Here, the electronic book  
can provide a power-saving mode wherein only a  
portion of the touchscreen 130 being viewed by a user  
20 is actively backlit.

The book-shaped housing includes a receiving  
slot 134 which physically receives a removable  
machine-readable storage medium 136. The removable  
machine-readable storage medium 136 contains machine-  
25 readable data representative of text from a book.  
Optionally, the machine-readable data is also  
representative of graphical information within the  
book. It is noted that the term "book" should be  
construed broadly as any written or printed  
30 composition having textual information which is read  
by an individual. Hence, the term "book" should be  
inclusive of books, magazines, newspapers, or the  
like.

0       The text and the graphical information contained  
in the removable machine-readable storage medium 136  
are displayed on the touchscreen 130. The second  
touchscreen 132 can be included to display graphical  
information while the touchscreen 130 displays text.  
5   As another option, the touchscreen 130 and the second  
touchscreen 132 can display neighboring pages of the  
book. Further, the touchscreen 130 and the second  
touchscreen 132 can be utilized to simultaneously  
view two books. The second touchscreen 132 can also  
10 be utilized in a second level operating system, which  
is herein called an advanced reader graphical user  
interface. The functionality of the second  
touchscreen 132 can be selected by the user using a  
switch or the advanced reader graphical user  
15 interface in the electronic book.

It is noted that there are a number of ways to  
encode the text and the graphical information within  
the book for storage on the removable machine-  
readable storage medium 136. In one embodiment, the  
20 removable machine-readable storage medium 136  
contains a series of pointers which point to words  
contained in a dictionary within the electronic book.  
Words which are not contained in the dictionary are  
located in a customized dictionary on the removable  
25 machine-readable storage medium 136. In this way,  
the words to be presented on the touchscreen 130 are  
selected with minimal storage requirements in the  
removable machine-readable storage medium 136.

Preferably, the removable machine-readable  
30 storage medium 136 is in the form of either a smart  
card or a PCMCIA card. Here, the receiving slot 134  
is shaped to receive either a smart card or a PCMCIA  
card.

0       The book-shaped housing 100 further defines a  
power-receiving port 138 and a data-receiving port  
140. The power-receiving port 138 receives a plug or  
other type of connector to supply power to the  
electronic book. Power supplied to the electronic  
5 book via the power receiving port 138 can be used to  
directly operate the electronic book or to recharge  
batteries internal to the electronic book. In one  
embodiment of the electronic book, the spine member  
110 is shaped to receive a combination of battery  
10 cells which can be recharged via the power-receiving  
port 138. If the second touchscreen 132 is not used,  
the enclosure 112 of the first housing member 102 can  
be used to store extra batteries and/or extra book  
cards.

15       The data port 140 is utilized to communicate  
signals representative of machine-readable data  
between the electronic book and an external device.  
The data port 140 can be used, for example, to  
receive machine-readable data signals representative  
20 of text and graphics in a book from the external  
device for storage in the electronic book. In this  
manner, the data port 140 provides an alternative to  
the receiving slot 134 for receiving text and  
graphics of a book. Additionally, the data port 140  
25 can be utilized to transmit machine-readable data  
contained within the electronic book to the external  
device.

Preferably, the electronic book is automatically  
activated (i.e., automatically turns on) when in the  
30 open position, and is automatically deactivated (i.e.  
automatically turns off) when in the closed position.  
To this end, the electronic book can include a magnet  
142 incorporated within one of the first housing  
member 102 or the second housing member, and a reed

0 switch 144 incorporated within the other housing  
member. When the electronic book is in the closed  
position, the magnet 142 is proximate to the reed  
switch 144. The magnetic field generated by the  
magnet 142 causes the reed switch 144 to assume a  
5 first switch position which deactivates the  
electronic book. When the electronic book is in the  
open position, the magnet 142 is distant from the  
reed switch 144. In absence of a significant  
magnetic field, the reed switch 144 returns to a  
10 second switch position which activates the electronic  
book.

It is noted that in alternative embodiments, the  
electronic book is activated and deactivated by an  
external switch or button (not specifically  
15 illustrated) rather than by the reed switch 144.

FIG. 3 is a block diagram of an embodiment of  
the electronic book. An interface 150 receives the  
removable machine-readable storage medium 136  
containing machine-readable data representative of  
20 text and graphics from a book. In a preferred  
embodiment of the present invention, the interface  
150 comprises a PCMCIA interface which receives a  
removable machine-readable storage medium in the form  
of a PCMCIA card. Physically, the interface 150 is  
25 proximate to the receiving slot 134 illustrated in  
FIG. 2.

In general, it is preferred that the interface  
150 be capable of receiving an external device other  
than a machine-readable storage medium. Further, it  
30 is preferred that the interface 150 be capable of  
receiving a plurality of external devices. To these  
ends, the interface 150 can comprise a plurality of  
similar interfaces, such as a plurality of PCMCIA  
interfaces. Here, the electronic book can

0 simultaneously receive two or more of a PCMCIA memory card, a PCMCIA modem, or another PCMCIA device.

A processor 152 is in communication with the interface 150 to read the machine-readable data from the removable machine-readable storage medium 136.

5 The processor 152 can be in the form of a microprocessor, a custom integrated circuit, an application specific integrated circuit, or a programmable logic array, for example. Physically, the processor 152 is housed within the book-shaped  
10 housing 100.

The touchscreen 130 is in communication with the processor 152 to display a page of the text and/or the graphics represented by the machine-readable data. Further, the touchscreen 130 acts as an input  
15 device to receive user-initiated events, i.e. user-initiated actions, and communicate these user-initiated events or actions to the processor 152.

An internal machine-readable storage medium 154 is in communication with the processor 152 to support  
20 a number of operative features of the electronic book. The internal machine-readable storage medium 154 can include one or more memory devices, such as a random access memory, a read-only memory, and/or an electronically erasable and programmable read-only  
25 memory (EEPROM).

A computer program or other form of software or firmware is stored in the internal machine-readable storage medium 154. The computer program directs the processor 152 to support the operative features of  
30 the electronic book. Preferably, the computer program includes an event loop that processes and responds to user-initiated events and actions. More specifically, received events are placed in an event queue in the internal machine-readable storage medium



0 154. Each of the received events is processed and removed from the event queue. As a result, a user can initiate a number of events or actions without having to wait for previous actions to be processed.

5 The internal machine-readable storage medium 154 can also include a dictionary to which pointers stored in the removable machine-readable storage medium 136 point. By including the dictionary within the electronic book, less storage space is required on the removable machine-readable storage medium 136 to store the text from the book.

10 Further, the internal machine-readable storage medium 154 can contain machine-readable data representative of text and graphics from a book. Here, the processor 152 reads the machine-readable data from the internal machine-readable storage medium 154 and commands the touchscreen 130 to display pages of the text and graphics.

15 Signals are communicated between the electronic book and an external device via either a data interface 156 in communication with the processor 152, via an antenna 158 and a radio frequency modem 160 in communication with the processor 152, or via an infrared transceiver 161 in communication with the processor. As another option, communication between the electronic book and the external device can be effectuated using either a smart communication card or a PCMCIA communication card received by the interface 150. Here, a PCMCIA modem card or a PCMCIA infrared transceiver card can be utilized, for example, for external communication.

20 25 30 Optionally, a voice synthesizer 162 is included in the electronic book to provide a spoken auditory display of pages of the text read from either the removable machine-readable storage medium 136 or the

0 internal machine-readable storage medium 154. In one  
embodiment, the processor 152 directly converts the  
text from the book into speech signals for the voice  
synthesizer 162. Optionally, control codes can be  
provided within the removable machine-readable  
5 storage medium 136 to allow words to be pronounced or  
emphasized in different ways. Further, the control  
codes can command the words to be spoken in either a  
male voice, a female voice, or a child's voice. The  
synthesized voice can be sampled (such as using the  
10 user's voice) or can be a computer-synthesized voice.

As an alternative, a custom voice dictionary can  
be provided to augment a general voice dictionary  
stored in the electronic book. The customized voice  
dictionary can be used for alternative  
15 pronunciations, voices, and emphasis.

The voice synthesizer 162 is either permanently  
integrated in the electronic book or is a removable  
accessory. To facilitate removability, the voice  
synthesizer 162 can be embodied within a smart card  
20 or a PCMCIA card for reception by the interface 150.  
Alternatively, the voice synthesizer 162 can  
communicate with the processor 152 via an accessory  
interface bus 163. In a similar manner, the RF modem  
160 and/or the second touchscreen 132 can communicate  
25 with the processor 152 via the accessory interface  
bus 163.

Before giving a detailed description of steps  
performed by the elements of FIG. 3 for the various  
embodiments of the present invention, a functional  
description of a particular embodiment of the  
30 electronic book will now be described. This  
embodiment is based on a single touchscreen, namely  
the touchscreen 130, to display the text and the  
graphics of the book and to allow a user to control

0 the electronic book. It is noted, however, that the  
teachings herein can also be applied to a dual  
touchscreen embodiment which further includes the  
second touchscreen 132. Furthermore, it is noted  
that the teachings herein are not limited to the use  
5 of a touchscreen, and hence, can be applied to an  
electronic book containing any type of display device  
(such as a liquid crystal display or a cathode ray  
tube, for example) and any type of input device (such  
as a series of buttons, a mouse, a trackball, a  
10 lightpen, or a touchpad, for example).

FIG. 4 is an illustration of various hot spot  
locations used to provide control of the electronic  
book to a user. A page of the text represented by  
the machine-readable data read from either the  
15 removable machine-readable storage medium 136 or the  
internal machine-readable storage medium 154 is  
displayed on a display portion 168 of the touchscreen  
130. The display portion 168 is also utilized to  
display graphics represented by the machine-readable  
20 data.

A first hot spot portion 170 of the touchscreen  
130 is designated for receiving a predetermined user-  
initiated event which requests that a subsequent page  
of the text be displayed on the touchscreen 130.  
25 Hence, the first hot spot portion 170 can be  
synonymously referred to as an "advance page portion"  
or an "advance page hot spot" for receiving an  
advance page event. In the embodiment illustrated in  
FIG. 4, the first hot spot portion 170 includes a top  
30 margin portion 172, a side margin portion 174, and a  
bottom margin portion 176 of the touchscreen 130.  
The top margin portion 172 is located above the  
display portion 168, the side margin portion 174 is  
located beside the display portion 168, and the

0 bottom margin portion 176 is located below the display portion 168.

A second hot spot portion 178 of the touchscreen 130 is designated for receiving a predetermined user-initiated event which requests that a previous page  
5 of the text be displayed. Hence, the second hot spot portion 178 can be synonymously referred to as a "page back portion" or a "page back hot spot" for receiving a page back event. In the embodiment illustrated in FIG. 4, the second hot spot portion  
10 178 is located beside the display portion 168 of the touchscreen 130 and opposite the side margin portion 174.

A third hot spot portion 180 of the touchscreen 130 is designated for receiving a predetermined user-initiated event which requests that a pre-marked page  
15 be displayed on the touchscreen 130. In the embodiment of FIG. 4, the third hot spot portion 180 is located in an upper portion of the touchscreen 130 and is shaped as a bookmark graphic 182. Hence, the  
20 third hot spot portion 180 can be synonymously referred to as a "bookmark portion" or a "bookmark hot spot".

A fourth hot spot portion 184 of the touchscreen 130 is designated for receiving a predetermined user-initiated event to close the current book being read  
25 and to request that a library screen be displayed on the touchscreen 130. The library screen is utilized by a user to select a book to read from a plurality of books within a library. Hence, the fourth hot  
30 spot portion 184 can be synonymously referred to as a "close book portion" or a "close book hot spot" for receiving a close book event.

A fifth hot spot portion 186 of the touchscreen 130 is designated for receiving a predetermined user-

0 initiated event which requests that the displayed  
page be marked. In the embodiment of FIG. 4, the  
fifth hot spot portion 186 is located in an upper  
corner of the touchscreen 130. In this embodiment,  
the fifth hot spot portion 186 of the touchscreen 130  
5 is utilized for dog-earring pages of the book.  
Hence, the fifth hot spot portion 186 can be  
synonymously referred to as a "dog ear portion" or a  
"dog ear hot spot" for receiving a dog ear event.

A sixth portion 188 of the touchscreen 130 is  
10 designated to provide a depth indication  
representative of how much of the book is left to be  
read. In the embodiment illustrated in FIG. 4, the  
sixth portion 188 is located above the display  
portion 168. The second hot spot portion 178 can be  
15 utilized in conjunction with the sixth portion 188 to  
provide the depth indication.

In the embodiment of FIG. 4, the display portion  
168, the first hot spot portion 170, the second hot  
spot portion 178, the third hot spot portion 180, the  
20 fourth hot spot portion 184, and the fifth hot spot  
portion 186 are mutually exclusive (i.e. non-  
overlapping) portions of the touchscreen 130.  
However, in alternative embodiments of the present  
invention, these portions may not be mutually  
25 exclusive, and hence may overlap. Further, some  
embodiments of the present invention may utilize  
different sizes and positions for the above-described  
hot spot portions.

Preferably, the hot spot portions are motion  
30 sensitive so that a touch event, a touch-and-hold  
event, and a drag event can be sensed to initiate  
differing responses. For example, a page back event  
can be received in the form of a flipping motion

0 (i.e. a short stroke) across the second hot spot  
portion 178.

FIG. 5 is an illustration of a library screen  
displayed using an embodiment of the electronic book.  
In a preferred embodiment, the library screen is  
5 displayed upon opening the electronic book or  
activating the electronic book. The library screen  
includes a rearward graphical book representation 200  
having a graphical spine portion 202. A forward  
graphical book representation 204 is displayed in  
10 front of the rearward graphical book representation  
200. The forward graphical book representation 204  
has a graphical spine portion 206 and a graphical  
front cover portion 208. A title 210 of a book  
currently being read is displayed on the forward  
15 graphical book representation 204. In the embodiment  
illustrated in FIG. 5, the title 210 is displayed on  
the graphical spine portion 206 of the forward  
graphical book representation 204.

Upon receiving a user-initiated event in which a  
20 portion of the rearward graphical book representation  
200 is selected, a title of another book or books of  
a plurality of books in a library is displayed in  
place of the title 210 on the forward graphical book  
representation 204. In a preferred embodiment, the  
25 portion of the rearward graphical book representation  
200 selected in this user-initiated event is within  
the graphical spine portion 202.

The titles of the books in the library can be  
obtained from a storage medium (which contains the  
30 books) installed in the electronic book.  
Alternatively, the titles of the books can be  
obtained by a connection to an information service  
providing books or other information in real time.

0 As another alternative, the titles and the books can be accessed on demand from a world-wide web page.

A user can scroll through the library of books by repeatedly touching the spine portion 202 with his or her finger 212 until a desired book title is  
5 pulled into view. When the spine portion 202 is selected for a last of the plurality of books, the title of the first book is displayed. In this manner, the user can rotate through the library of books until a desired book is in front.

10 FIG. 6 is an illustration of a user-initiated event to open the desired book from the library screen. The forward book is opened upon receiving a user-initiated event in which a portion of the forward graphical book representation 204 is  
15 selected. This user-initiated event can include, for example, the user touching the front cover portion 208 of the forward graphical book representation 204 using his or her finger 212. In response to this user-initiated event, the book indicated by a title  
20 214 is opened. If the book is previously unread, the book is opened to page one. If the book has been read before, the book opens to a page which was last read.

FIG. 7 is an illustration of a first page of a  
25 book displayed on the touchscreen 130 upon exiting the library screen. To display the first page of the book, the machine-readable data representative of text and graphics from the book is read from either the removable machine-readable storage medium 136  
30 installed in the electronic book, or from the internal machine-readable storage medium 154. Upon reading the machine-readable data, a page of the text and/or the graphics is then displayed on the

0 touchscreen 130. As shown, the text is displayed to appear as a standard page in a real book.

If a user-initiated event is received in which a user selects the second hot spot portion 178, i.e. the page back portion, of the touchscreen 130 when  
5 the book is on the first page, then a title page containing system controls is displayed.

FIG. 8 is an illustration of a title page of a book displayed on an embodiment of the electronic book. Information which is displayed on the title  
10 page includes a book title 220, author information 222, copyright information 224, a Library of Congress number 226, and publisher information 228. Also displayed are statistics such as a total number of pages 230 in the book, a number of pages left to be  
15 read 232, and an elapsed reading time 234.

A number of control options are also displayed. These control options include, but are not limited to, a pacing control option 236, a font selection option 238, a system control option 240, a read-to-me  
20 option 242, and a radio frequency (RF) link option 244. Any of these control options can be initiated by a respective user-initiated event indicative of a user selecting the option. As illustrated in FIG. 8, a user is initiating a font selection routine by  
25 touching the font selection option 238 using his or her finger 212.

FIG. 9 is an illustration of a font selection page displayed on an embodiment of the electronic book. The font selection page is displayed upon an  
30 initiation of the font selection routine.

Displayed on the font selection page are a number of font/size combination options. Each option is in the form of a word displayed using a specific font and a specific size in accordance with the



0 font/size combination. A user selects a desired  
font/size combination by viewing how words appear in  
the various combinations, and selecting the  
combination which is desired. For example, in FIG.  
9, the user is selecting a desired font/size  
5 combination by selecting a word 250 displayed in the  
desired font/size combination using his or her finger  
212.

The fonts can be selected from internal fonts  
and custom fonts provided on the medium provided by a  
10 publisher. For example, a user may select a Gothic  
font provided on a medium containing a Shakespeare  
work instead of default fonts (c.g. Courier,  
Helvetica, Avant Garde) within the electronic book.

Upon selecting the desired font/size  
15 combination, the electronic book automatically flips  
back to the title page containing the system  
controls. Thereafter, the electronic book uses the  
desired font/size combination as a primary font/size  
combination to display the text of the book. Titles  
20 and headings in the book are enlarged and bolded  
based upon the primary font/size combination. Other  
portions of text can be italicized based on the  
primary font. However, it is preferred that the body  
of the text never be displayed smaller than the size  
25 selected in the primary font/size combination. In  
some embodiments, it may be preferred to display  
footnotes in a size smaller than the size selected.

FIG. 10 is an illustration of the title page of  
the book which is displayed upon exiting the font  
30 selection page. Here, a user is shown to initiate a  
system control routine by selecting the system  
controls option 240 using his or her finger 212.

FIG. 11 is an illustration of a system control  
page displayed in an embodiment of the electronic

0 book. The system control page is displayed upon  
executing the system control routine.

The system control page provides a number of  
display controls including a contrast control 254, a  
tint control 256, and a color control 258. Each of  
5 these controls provides a discrete number of control  
values which can be directly selected by a user.  
Further, each control value is displayed in a  
graphical manner consistent with the result of its  
selection. For example, the contrast control 254  
10 includes a high contrast graphical representation  
262, an intermediate contrast graphical  
representation 264, and a low contrast graphical  
representation 266. The graphical representations  
262, 264, and 266 are of the same graphical image,  
15 but are displayed using different contrast control  
values. Hence, a user can visually determine a  
desired contrast by viewing the graphical  
representations 262, 264 and 266. In a similar  
manner, the tint control 256 and the color control  
20 258 each display a predetermined graphical image  
using a discrete number of tint control values and  
color control values, respectively.

Preferably, the display of the graphical  
representations within the display controls are  
25 unaffected by current values of selected ones of the  
controls. In one preferred embodiment, the display  
of the graphical representations is independent of  
all of the current values. For example, the display  
of the low contrast representation 266 can be  
30 independent of the current contrast control value,  
the current tint control value, and the current color  
control value. In another preferred embodiment, the  
display of the graphical representations in each  
control is independent of the current value of that

0 control, but depend on the current value of the other  
controls. Here, for example, the display of the low  
contrast representation 266 is independent of the  
current contrast control value, but dependent upon  
the current tint control value and the current color  
5 control value. Using either of these two  
embodiments, a user can immediately determine a  
result of each control value selection before  
actually performing the selection.

The system control page also includes a sound  
10 control 267. The sound control 267 is illustrated to  
have a discrete number of sound intensity values  
which can be selected by a user. In the embodiment  
of FIG. 11, the sound intensity values are  
monotonically related to the size of an ear displayed  
15 on the sound control 267. An ear 268 having a slash  
therethrough is indicative of an option to turn off  
the sound. For the purpose of illustration, FIG. 11  
shows a user selecting an intermediate sound  
intensity by touching an ear graphic 269. The user  
20 then returns to the system control page by touching  
the second hot spot portion 178, i.e. the page back  
hot spot, of the touchscreen 130.

It is noted that the controls on the system  
control page can provide continuous, rather than  
25 discrete, control of the control values in  
alternative embodiments of the electronic book.  
Here, for example, the ear size and the volume can  
increase or decrease based on finger selection  
movement.

30 A pad area 270 of the system control page is  
utilized for testing motions such as a hold event, a  
turn event, and a mark event. In particular, a user  
can point to any of a hold selection 271, a turn  
selection 272, and a mark selection 273, and then

0 perform the selected motion in the pad area 270.  
Here, a length of hold time or style of dragging a  
finger for a flip command can be gauged for each  
user, for example, using the pad area 270.

5 FIG. 12 is an illustration of the title page of  
the book which is displayed upon exiting the system  
control page. Here, the user is illustrated to  
select the read-to-me option 244 which initiates the  
voice synthesizer 162 to audibly read the text being  
visually displayed on the touchscreen 130. The  
10 audible reading of the text begins at the last page  
which was displayed on the touchscreen 130. The  
reading rate and other controls for the read-to-me  
routine is provided on a pacing control page  
described hereinafter.

15 FIG. 13 is an illustration of the title page of  
the book wherein a radio frequency link option is  
selected. This option is selected by the user by  
touching the RF link option 244 using his or her  
finger 212. Upon selecting the RF link option 244,  
20 an RF link routine is executed. The RF link routine  
allows the user to download updates of the text to  
the electronic book, and/or to interface the  
electronic book to a personal computer or  
communication unit. The RF link routine utilizes the  
25 antenna 158 and the RF modem 160 illustrated in FIG.  
3 to communicate with the personal computer using a  
local wireless link, or more generally to communicate  
with a wireless data communication network.  
Utilizing a nationwide wireless data communication  
30 network, such as the Ardis network, allows  
individuals to receive book updates via radio  
frequency links in major cities.

FIG. 14 is an illustration of the title page of  
the book wherein a pacing control option is selected

0 by a user. Specifically, the user is shown to  
initiate a pacing control routine by selecting the  
pacing control option 236 displayed on the title page  
using his or her finger 212.

FIG. 15 is an illustration of a pacing control  
5 page displayed in an embodiment of the electronic  
book. The pacing control page is displayed once the  
user selects the pacing control option 236 from the  
title page. The pacing control page includes a  
display 280 of a current reading pace of the user.  
10 Based upon the number of pages left in the book,  
which is given in a display 282, a display 284 of an  
estimated completion time for the book is also given.  
In the embodiment of FIG. 15, the current reading  
pace, the number of pages left, and the estimated  
15 completion time are displayed in the form of one or  
more sentences.

Also displayed on the pacing control page is a  
display 290 of a desired reading pace. A display 292  
of an estimated completion time in accordance with  
20 the desired reading pace is also given. The desired  
reading pace is controlled by the user using a  
graphical slider bar 294. The pages of the text in  
the book are automatically paced by a pacing routine  
which is enabled and disabled by a graphical switch  
25 296. In one embodiment, each page of text is  
displayed for a duration commensurate with the  
desired reading rate controlled by the graphical  
slider bar 294. The user returns to the title page  
from the pacing control page by selecting the second  
30 hot spot portion 178, i.e. the page back portion, of  
the touchscreen 130.

FIG. 16 is an illustration of the title page of  
the book which depicts other user-initiated options.  
The user can return to a book-marked page by

0 selecting the bookmark graphic 182. The user can  
return to the library screen by selecting the fourth  
hot spot portion 184, i.e. the close book portion, of  
the touchscreen 130. The user can go to the first  
page of the book by selecting the first hot spot  
5 portion 170, i.e. the advance page portion, of the  
touchscreen 130.

FIG. 17 is an illustration of a page marked by a  
dog ear in an embodiment of the electronic book. The  
user initiates a dog ear command by performing a  
10 predetermined user-initiated event. An example of  
such an event includes a user touching an upper  
corner portion of the touchscreen 130, such as the  
fifth hot spot portion 186 defined earlier.

If the page is not dog-eared, then a brief  
15 touching of the upper corner portion 186 causes a dog  
ear graphic 300 to be displayed in the upper corner  
portion. In addition, an indication that this page  
has been dog-eared is stored either in the removable  
machine-readable storage medium 136 or the internal  
20 machine-readable storage medium 154.

If the user touches the upper corner portion 186  
of a page already marked with a dog ear, or if the  
upper corner portion 186 is held for a duration  
greater than a predetermined threshold, then a dog  
25 ear dialog box is opened.

FIG. 18 is an illustration of a dog ear dialog  
box used in embodiments of the electronic book. A  
dog ear dialog box 302 is displayed on touchscreen  
130. The dog ear dialog box 302 displays a list 304  
30 of all dog-eared pages. A user can immediately go to  
one of the dog-eared pages on the list 304 by  
touching a display of a selected page number.

The dog ear dialog box 302 also displays an  
option 306 to display marks 308 along an edge 310 of

0 the page. Thereafter, a user can touch any of the  
marks 308 to move quickly to a corresponding one of  
the dog-eared pages. In the example illustrated in  
FIG. 18, a mark 312 corresponds to marked page 1, a  
dog ear 314 corresponds to marked page 35, a mark 316  
5 corresponds to marked page 94, a mark 318 corresponds  
to marked page 111, and a mark 320 corresponds to  
marked page 120. In a preferred embodiment, page one  
is always marked with a dog ear so that a user can  
quickly return thereto using either the marks 308 or  
10 the dog ear dialog box 302.

Upon receiving a user-initiated event while the  
dog ear dialog box 302 is displayed, the dog ear  
dialog box 302 is removed to show the selected page  
of the book.

15 FIG. 19 is an illustration of a user selecting a  
portion of a page of text. A portion 330 is selected  
by a user-initiated event of sliding his finger 212  
(or other pointing member such as a stylus) from a  
first position 332 to a second position 334. Upon  
20 its selection, the portion 330 of the text is  
highlighted in a predetermined manner. The portion  
330 of the text can be highlighted in color if the  
touchscreen 130 is capable of a color display.  
Alternatively, the portion 330 of the text can be  
25 highlighted using grey scale shading, reverse video,  
or underlining. An option selection dialog box is  
then displayed on the touchscreen 130 to provide the  
user a number of text marking options.

FIG. 20 is an illustration of an option  
30 selection dialog box used in embodiments of the  
electronic book. An option selection dialog box 340  
is displayed on the touchscreen 130 in a location out  
of the way of the portion 330 of the text that is  
marked when possible. The option selection dialog

0 box 340 includes a plurality of text marking options including a note capture option 342, a highlighting option 344, a quote capture option 346, and a set bookmark option 348.

5 Briefly, the note capture option 342 allows a user to type in notes associated with the portion 330 of the text. The highlighting option 344 leaves the portion 330 of the text highlighted, and stores an indication of this highlighting so that any subsequent return to this page displays the portion  
10 330 as being highlighted. The quote capture option 346 allows a user to store the portion 330 of the text along with source data, such as the name of the author of the book or the title of the book, in the internal machine-readable storage medium 154. The  
15 set bookmark option 348 can be selected to add a bookmark to the current page. If the page already has a bookmark, then a number of bookmark management options similar to options used for the dog ear command are provided to the user.

20 FIG. 21 is an illustration of an annotation display used in embodiments of the electronic book. The annotation display is provided in response to a user selecting the note capture option 342 illustrated in FIG. 20. After receiving a user-  
25 initiated event indicative of selecting the note capture option 342, a soft keyboard 360 is displayed on the touchscreen 130. The soft keyboard 360 includes alphanumeric keys and symbolic keys along with a close key and a notes collection key.

30 A plurality of keystroke events are received by the soft keyboard 360 to form an annotation. As the keystroke events are received, a plurality of characters corresponding thereto are displayed in a window 362 on the touchscreen 130.



0       The user selects the close key on the soft  
keyboard 360 upon completing the annotation. In  
response to selecting the close key, the electronic  
book removes the soft keyboard 360 and the window 362  
5       from the touchscreen 130 and displays a note marker  
icon to indicate that the page has an annotation  
associated therewith.

      The notes collection key on the soft keyboard  
360 commands the electronic book to communicate the  
annotation to an external device such as a personal  
10       computer. The personal computer can be interfaced to  
the electronic book either wirelessly via the antenna  
158 and the radio frequency modem 160 shown in FIG.  
3, using a wire-based connection via the data  
interface 156, or using an infrared link.

15       An annotation can also be in the form of an  
image of pixels which overlays the page of the text.  
The pixels can be drawn on the touchscreen 130 using  
a pointing device. The pixels can be stored in a  
pixel-map form for subsequent viewing or for  
20       subsequent conversion to text using a handwriting  
recognition method.

      As another option, an accessory keyboard can be  
added to the electronic book to enter the annotation  
as well as other information.

25       FIG. 22 is an illustration of a marker used to  
indicate that a page has an annotation associated  
therewith. The page illustrated in FIG. 22 results  
after the user enters the annotation and selects the  
close key from the soft keyboard 360 as illustrated  
30       in FIG. 21. As shown, the page in FIG. 22 no longer  
has the soft keyboard 360 and the window 362  
displayed thereon. However, a note marker icon 370  
is displayed in a lower corner of the page. The user  
can view the annotation associated with this page by

0 selecting the note marker icon 370. Selecting the  
note marker icon 370 has the same effect as selecting  
the note capture option 342 as shown in FIG. 20.

Further, an annotation can be indicated by  
underlining or highlighting the portion of the text  
5 associated with the annotation. The annotation can  
be viewed in a hypertext-type manner by selecting the  
portion of text.

FIG. 23 is an illustration of a user selecting a  
set bookmark option in the option selection dialog  
10 box. The user selects the set bookmark option 348 by  
touching the displayed text associated therewith  
using his or her finger 212 or other pointing member.  
If this page had already included a bookmark, then a  
bookmark management dialog box is displayed similar  
15 to the one used for the dog ear command. Since the  
page illustrated in FIG. 23 does not have a bookmark  
associated therewith, the selection of the set  
bookmark option 348 causes a bookmark to be added to  
the page. In a preferred embodiment, only one page  
20 is bookmarked within each book.

FIG. 24 is an illustration of the page of FIG.  
23 having a bookmark displayed thereon. A bookmark  
icon 380 is displayed in an upper portion of the page  
to indicate that the page has been bookmarked.

25 It is noted that pointing devices other than an  
individual's finger may be utilized to generate user-  
initiated events indicative of desired selections  
using the touchscreen 130. For example, a stylus or  
the like can be utilized to select desired portions  
30 of the touchscreen 130.

It is also noted that various types of graphical  
controls can be utilized to control settings and  
parameters of the electronic book. These graphical  
controls include, but are not limited to, graphical

0 buttons, checkboxes, radio buttons, scroll bars,  
slider bars, pop-up menus, and dialog boxes.

Next, a description of steps which are performed  
by the various components of the electronic book to  
provide its features and functionality is presented.

5 These operational steps are performed on or with the  
aid of the processor 152 illustrated in FIG. 3. The  
processor 152 is directed to function in a manner in  
accordance with these operational steps based upon a  
computer program or other form of software or  
10 firmware stored in a computer readable memory. The  
computer readable memory can be contained with the  
processor 152, within the internal machine-readable  
memory 154, or within a separate machine-readable  
storage medium in communication with the processor  
15 152.

It is noted that the order in which the steps  
are described are indicative of one embodiment of the  
present invention, and that alternative embodiments  
of the present invention may perform the steps in a  
20 different order to achieve the same functionality.

FIG. 25 is a flow diagram of an event loop  
performed in an embodiment of the electronic book.  
As indicated by block 400, a step of executing a  
library graphical user interface routine is  
25 performed. The library graphical user interface  
routine provides a virtual library to allow a user to  
select a book to read from a plurality of books  
within a library, and/or access an information  
service or world-wide web page as previously  
30 described. The plurality of books can be contained  
in one or more removable machine-readable storage  
media and/or the internal machine-readable storage  
medium.

0        Upon selecting a desired book, a step of  
executing a routine to display one or more pages of  
text and graphics from the desired book is performed  
as indicated by block 402. The routine to display  
the pages of text is executed until a predetermined  
5        user-initiated event is received to exit the routine.  
As indicated by block 404, if a close book event is  
received, then flow of the event loop is directed  
back to the step of executing the library graphical  
user interface routine in block 400.

10        If a page back event is received when the  
current page of text being read is page one, then a  
step of displaying a title page of the book is  
performed as indicated by block 406. The title page  
provides a number of control options available to a  
15        user. The user selects a desired control option  
based upon a user-initiated event. Block 408  
indicates a step of receiving this user-initiated  
event.

20        Based upon the user-initiated event which is  
received, flow of the event loop is directed to one  
of a number of subroutines in a step indicated by  
block 410. If the received event is indicative of  
the user selecting the pacing control option, then a  
step of executing a pacing control routine is  
25        performed as indicated by block 412. If the received  
event is indicative of the user selecting the font  
selection option, then a step of executing a font  
selection routine is performed as indicated by block  
414. If the received event is indicative of the user  
30        selecting the system control option, then a step of  
executing a system control subroutine is performed as  
indicated by block 416. If the received event is  
indicative of the user selecting the RF link option,  
then a step of executing an RF link subroutine is

0 performed as indicated by block 420. Upon completing  
either the pacing control subroutine, the font  
selection routine, the system control routine, or the  
RF link routine, flow of the event loop is directed  
back up to block 406 wherein the step of displaying  
5 the title page is performed.

If the received event from block 408 is  
indicative of the user selecting the read-to-me  
option, then a step of executing a read-to-me routine  
is performed as indicated by block 422. Flow of the  
10 event loop is then directed back to block 402 to  
execute the routine to display pages of text from the  
book. The execution of the read-to-me routine in  
block 422 provides a spoken, auditory display of the  
text in addition to the visual display of the text in  
15 block 402.

If the event received in the step of block 408  
is an advance page event, then a step of setting the  
current page to page one is performed as indicated by  
block 424. If the received event is indicative of  
20 the user selecting a bookmark displayed on the title  
page, then a step of setting the current page to a  
previously bookmarked page is performed as indicated  
by block 426. After the current page is set in  
either of the steps indicated by blocks 424 and 426,  
25 then flow of the event loop is directed back to the  
step of executing the routine to display pages of  
text indicated by block 402.

Finally, if the event received in block 408 is  
indicative of a close book event, then flow of the  
30 event loop is directed back to block 400 to perform a  
step of executing the library graphical user  
interface routine.

FIG. 26 is a flow diagram of steps performed in  
an embodiment of a library graphical user interface

0 routine for use in the electronic book. These steps  
can be performed in executing the library graphical  
user interface routine indicated by block 400 in FIG.  
25. The steps provide a method of selecting a book  
for reading in an electronic book where the book is  
5 selected from a plurality of books in a library.

As indicated by block 430, a step of displaying  
a rearward graphical book representation having a  
graphical spine portion is performed. A step of  
displaying a forward graphical book representation in  
10 front of the rearward graphical book representation  
is performed as indicated by block 432. The forward  
graphical book representation has a graphical spine  
portion and a graphical front cover portion.

As indicated by block 434, a step of displaying  
15 a title of a first book of the plurality of books on  
the forward graphical book representation is  
performed. The title of the first book can be  
displayed anywhere on the forward graphical book  
representation. However, in a preferred embodiment,  
20 the title of the first book is displayed on the  
graphical spine portion of the forward graphical book  
representation. FIG. 5 illustrates an example of the  
rearward graphical book representation 200 having the  
graphical spine portion 202, the forward graphical  
25 book representation 204 having the graphical spine  
portion 206 and the graphical front cover portion  
208, and the title 210 displayed on the forward  
graphical book representation 204.

With reference again to FIG. 26, a step of  
30 receiving a first user-initiated event in which a  
portion of the rearward graphical book representation  
is selected is performed as indicated by block 436.  
In a preferred embodiment, the portion of the  
rearward graphical book representation selected in

0 this step is within the graphical spine portion of  
the rearward graphical book representation. Upon  
receiving the first user-initiated event, a step of  
displaying a title of a second book of the plurality  
of books is performed as indicated by block 440.  
5 Preferably, the title of the second book is displayed  
in place of the title of the first book on the  
graphical spine portion of the forward graphical book  
representation.

As indicated by block 442, a step is performed  
10 of receiving a second user-initiated event in which a  
portion of the forward graphical book representation  
is selected. In a preferred embodiment, the portion  
of the forward graphical book representation selected  
in this step is within the front cover portion of the  
15 forward graphical book representation. The reception  
of the second user-initiated event ends the execution  
of the library graphical user interface routine, and  
flow is directed to the routine to display pages of  
text from the second book. Here, steps are performed  
20 of reading machine-readable data from a machine-  
readable storage medium installed in the electronic  
book, the machine-readable data being representative  
of text from the second book, and displaying the text  
represented by the machine-readable data.

25 It is noted that the steps indicated by blocks  
436 and 440 can be repeated to allow the user to  
rotate through the plurality of books. When the  
first user-initiated event is received while a last  
of the plurality of books is displayed, the next  
30 title displayed is that of the first of the plurality  
of books.

It is preferred that steps of displaying and  
receiving user-initiated events all be performed  
using the touchscreen 130 integrated in the

0 electronic book. However, in alternative embodiments of the electronic book which include a series of buttons external to the touchscreen 130, any of the above-described user-initiated events may be received using these buttons.

5 FIGS. 27 and 28 show flow diagrams of an embodiment of the routine to display pages of text in the electronic book. The steps indicated in these flow diagrams are performed in one embodiment of the step indicated by block 402 in FIG. 25.

10 Upon entering the routine, a step of displaying a current page of the book is performed as indicated by block 450. The current page includes text from the current page of the book, a graphical display of a number of pages remaining in the book, a display of a bookmark graphic if there is a bookmark associated  
15 with the current page, a dog ear graphic if the current page is dog-eared, and a note marker icon if there is an annotation associated with the current page. Optionally, the current page includes graphics  
20 from the current page of the book.

After displaying the current page, a branching step is performed, as indicated by block 452, based upon any user-initiated events which are received. If a user-initiated event is received which selects a  
25 portion of the text, a step of marking the portion of the text is performed as indicated by block 454. The portion of the text can be marked either by color or grey scale highlighting the portion of the text, underlining the portion of the text, or displaying  
30 the portion of the text in a reverse video form. The portion of the text can be selected directly by a user sliding a finger or a stylus over the portion of the text. Alternatively, the portion of the text can be selected indirectly by a menu selection technique.



0       After the portion of the text has been marked, a  
step of displaying an option selection dialog box is  
performed as indicated by block 456. The option  
selection dialog box provides a plurality of options  
to the user, including a note capture option, a  
5   highlighting option, a quote capture option, and a  
set bookmark option.

As indicated by block 460, a step of receiving a  
user-initiated event indicative of a selection of one  
of the options is performed. Based upon the  
10   selection, a branching step is performed as indicated  
by block 462. If the note capture option is  
selected, then a step of executing an annotation  
subroutine is performed as indicated by block 464.  
If the quote capture option is selected, then a step  
15   of executing a quote capture subroutine is performed  
as indicated by block 466. If the highlighting  
option is selected, then a step of executing a  
highlighting subroutine is performed as indicated by  
block 470. If the set bookmark option is selected,  
20   then a step of executing a bookmark subroutine is  
performed as indicated by block 472.

Upon completing the execution of either the  
annotation subroutine, the quote capture subroutine,  
the highlighting subroutine, or the bookmark  
25   subroutine, a step of determining whether a pacing  
mode is active is performed as indicated by block  
474. If the pacing mode is inactive, then flow of  
the routine is directed back to block 452 which  
performs a branching step based upon a received user-  
30   initiated event. If the pacing mode is active, then  
a step of determining whether a highlighting mode is  
active is performed as indicated by block 476. If  
the highlighting mode is active then a step of  
scrolling a highlight across the current page is

0 performed as indicated by block 480. Scrolling the highlight across the current page allows pacing of a user's scanning across the current page. A user can activate the highlighting mode to help enhance his or her reading speed.

5 The highlight which is scrolled across the page can be in the form of either a color or grey scale highlight, an underlining of text, or a reverse video form of text. If the touchscreen 130 is capable of selective backlighting, then the highlight can be in  
10 the form of a selective backlighting of a reduced portion of the touchscreen 130.

After scrolling the highlight across the current page in block 480 or if the highlighting mode is inactive, then a step of determining whether it is  
15 time for displaying a subsequent page is performed as indicated by block 482. If the time has not yet come for displaying a subsequent page, then flow is directed back to block 452. If the time has arrived for displaying a subsequent page, then a step of  
20 updating the current page is performed as indicated by block 484. Next, a step of displaying a forward page turn in an animated matter is performed as indicated by block 486. This step includes displaying an animated sequence of images which  
25 simulates a forward flipping of a page. Flow of the routine is then directed back to block 450 to display the new current page.

With reference to block 452, if a user-initiated event is received indicative of the user selecting  
30 the note marker icon, then the step of executing the annotation routine indicated by block 464 is performed. Thereafter, subsequent steps are performed beginning with the step indicated by block 474.

0       With reference to the branching step performed  
in block 452, if a dog ear user-initiated event is  
received, then a step of executing a dog ear routine  
is performed as indicated by block 490. If the user-  
initiated event is indicative of the user selecting  
5 the bookmark portion of the page, then a step of  
executing a bookmark management routine is performed  
as indicated by block 491. Thereafter, subsequent  
steps are performed beginning with the step indicated  
by block 474. Similarly, if no user-initiated events  
10 are received in block 452, then flow of the routine  
is directed to the step indicated by block 474.

      If the user-initiated event is indicative of the  
user selecting the page back portion of the page,  
then flow from block 452 branches to a step of  
15 decrementing the current page as indicated by block  
492. Further, a step of displaying a backward page  
turn in an animated matter is performed as indicated  
by block 494. This step includes displaying an  
animated sequence of images which simulates a  
20 backward flipping of a page. The steps indicated by  
blocks 486 and 494 give the user the sense or feel  
that a page of information is being turned in place,  
carrying forward the familiar paradigm of turning the  
page on a standard paper book.

25       As indicated by block 496, a step of determining  
whether the new current page is the title page is  
performed after the step of block 494. If the new  
current page is the title page, then execution of the  
routine to display pages of text in the electronic  
30 book is completed as indicated by block 500. If the  
new current page is any page but the title page, then  
flow of the routine is directed back to block 450  
wherein a step of displaying the new current page is  
performed.

0        If the user-initiated event is indicative of the user selecting the advance page portion of the page, then flow is directed from the step indicated by block 452 to a step of incrementing the current page as indicated by block 502. Further, a step of  
5        displaying a forward page turn in an animated matter is performed is indicated by block 504. Flow of the routine is then directed back to block 450 wherein the new, incremented current page is displayed.

10        FIG. 29 is a flow diagram of steps performed to display a current page in the electronic book. These steps constitute one embodiment of a method of performing the step indicated by block 450 in FIG.  
27.

15        As indicated by block 510, a step of displaying text from the current page of the book is performed. The text is displayed in accordance with a primary font parameter and a primary size parameter. If there is any highlighting associated with a portion of the text on the current page, then a step of  
20        displaying the portion of the text in a highlighted manner is performed as indicated by block 512. If any graphical information is included in the current page, then a step of displaying the graphical information is performed as indicated by block 513.

25        As indicated by block 514, a step of graphically displaying a number of pages remaining in the book is performed. The number of pages remaining in the book can be displayed in the sixth portion 188 of the touchscreen 130 as illustrated in FIG. 4. The number  
30        of pages remaining in the book can be graphically displayed using either an image of a number of pages, a dark line as a drop shadow, or a group of parallel lines to indicate relative depth by page number in a given document. When the current page is one of the

0 early pages in the book, the drop shadow or graphical  
image depth is relatively deep, indicating that there  
is a significant portion of the book remaining to be  
read. When the current page is near the middle of  
the book, the drop shadow or graphical image depth is  
5 half as deep. When nearing the end of the book, the  
drop shadow or graphical image depth becomes very  
thin indicating that the reader is almost at the end  
of the book. As a result, the user can determine at  
a glance how much of the book has been read, and  
10 their relative position within the book just as a  
standard paper book. As an alternative to using a  
top portion of the touchscreen for graphically  
displaying the number of pages remaining in the book,  
a side edge and/or a bottom edge of the touchscreen  
15 130 can be utilized to provide this graphical  
display.

As indicated by block 516, a step of determining  
if a bookmark is associated with the current page is  
performed. If a bookmark is associated with the  
20 current page, then a step of displaying a bookmark  
graphic is performed as indicated by block 520.

As indicated by block 522, a step of determining  
if the current page is dog-eared is performed. If  
the current page is dog-eared, then a step of  
25 displaying a dog ear graphic is performed as  
indicated by block 524.

As indicated by block 526, a step of determining  
whether an annotation exists for the current page is  
performed. If there is an annotation associated with  
30 the current page, then a step of displaying a note  
marker icon is performed as indicated by block 530.

FIG. 30 is a flow diagram of steps performed in  
an embodiment of an annotation routine. Such an

0 annotation routine is executed in the step indicated  
by block 464 in FIG. 28.

As indicated by block 540, a step of displaying  
a window for displaying the annotation is performed.  
As indicated by block 542, a step of displaying a  
5 soft keyboard on the touchscreen 130 is performed.  
The soft keyboard is provided to receive a plurality  
of keystroke events to form the annotation.

After displaying the soft keyboard and the  
annotation window, a step of receiving a keystroke  
10 event is performed as indicated by block 544. As  
indicated by block 546, a branching operation is  
performed based upon the keystroke event received in  
block 544. If the keystroke event is indicative of  
the user selecting either an alphanumeric key or a  
15 symbolic key on the soft keyboard, then a step of  
displaying a character associated with the key is  
performed as indicated by block 560. The character  
associated with the key is displayed within the  
annotation window. After displaying the character,  
20 flow of the routine is directed back to block 544  
wherein a subsequent keystroke event is received.

Referring back to the branching step indicated  
by block 546, if the keystroke event is indicative of  
a user selecting the close key from the soft  
25 keyboard, then a step of closing the soft keyboard is  
performed as indicated by block 562. A step of  
closing the annotation window is also performed, as  
indicated by block 564. As indicated by block 566, a  
step of displaying a note marker icon on the page is  
30 performed. Thereafter, execution of the annotation  
subroutine is completed.

With reference again to the branching step  
performed in block 546, if the keystroke event is  
indicative of the user selecting the notes collection

0 key, then a step of communicating the annotation to  
an external personal computer is performed as  
indicated by block 570. After communicating the  
annotation to the personal computer, flow of the  
routine is directed back to block 544 wherein a  
5 subsequent keystroke event is received.

FIG. 31 is a flow diagram of steps performed in  
an embodiment of a quote capture subroutine. Such a  
quote capture subroutine can be performed to provide  
the step indicated by block 466 in FIG. 28.

10 Prior to entering the quote capture subroutine,  
a user-initiated event was received in the electronic  
book which selects a portion of the text displayed on  
the touchscreen. After receiving the user-initiated  
event, a plurality of text marking options, including  
15 a quote capture option, is displayed, and a user-  
initiated event indicative of a user selecting the  
quote capture option is received.

As indicated by block 580, a step of storing  
quote data representative of the portion of the text  
20 is performed. The quote data is stored in the  
internal machine-readable storage medium 154  
illustrated in FIG. 3.

As indicated by block 582, a step of storing  
source data which identifies the source of the quote  
25 data is performed. The source data can be  
representative of the author of the book, the title  
of the book, a copyright date of the book, and/or a  
publisher of the book. The source data is stored in  
the internal machine-readable storage medium 154 from  
30 FIG. 3.

As indicated by block 584, a step is performed  
of maintaining the quote data and the source data in  
the internal machine-readable storage medium when the  
removable machine-readable storage medium is removed

0 from the electronic book. As a result of this step,  
subsequent steps can be performed based upon the  
quote data and the source data when the removable  
machine-readable storage medium is removed.  
Specifically, a step of retrieving the quote data and  
5 the source data from the internal machine-readable  
storage medium can be performed when the removable  
machine-readable storage medium is removed from the  
electronic book. Thereafter, a step of displaying  
the portion of the text represented by the quote data  
10 and source information represented by the source data  
can be performed.

It is noted that limits on the ability to  
download quotes can be set within the machine-  
readable storage medium containing the book. The  
15 limits can be in the form of software keys which are  
set, for example, by a copyright holder of the book.

FIG. 32 is a flow diagram of steps performed in  
an embodiment of a dog ear subroutine. Such a dog  
ear subroutine is executed in the step indicated by  
20 block 490 in FIG. 27.

As indicated by block 590, a step is performed  
of determining a duration in which a dog ear portion  
of the touchscreen is held. A step of comparing the  
duration to a predetermined threshold is performed as  
25 indicated by block 592. The predetermined threshold  
can be about a second. If the duration is less than  
the predetermined threshold, then a step of  
determining whether the current page has a dog ear is  
performed as indicated by block 594. If the current  
30 page does not have a dog ear, then a step of storing  
an indication that the current page be dog-eared is  
performed as indicated by block 596. Further, a step  
of displaying a dog ear graphic in an upper corner  
portion of the touchscreen 130 is performed as



0 indicated by block 600. Thereafter, execution of the dog ear subroutine is completed.

With reference to blocks 592 and 594, if the duration is greater than or equal to the predetermined threshold or if the current page is  
5 already dog-eared, then a step of displaying a dog-eared dialog box is performed as indicated by block 602. Within the dog-eared dialog box, a list of all marked pages is displayed. Further, an option to show marks corresponding to all of the marked pages  
10 along an edge of each page is displayed.

As indicated by block 604, a user-initiated event is received. As indicated by block 606, a branching step is performed based upon the user-initiated event received. If the user-initiated  
15 event is indicative of a user selecting a page number from the list of marked pages, then a step of setting the current page to the selected page number is performed as indicated by block 610. If the user-initiated event is indicative of the user selecting  
20 the marking option, then a step of displaying marks corresponding to the dog-eared pages along an edge of the page is performed as indicated by block 612.

FIG. 33 is a flow diagram of steps performed in an embodiment of a pacing control subroutine. The  
25 pacing control subroutine is executed in the step indicated by block 472 in FIG. 25.

As indicated by block 620, a step of determining a number of pages remaining in the book is performed. As indicated by block 622, a step of determining a  
30 current reading pace of the user is performed.

Based upon the number of pages remaining in the book, a step of calculating one or more estimated completion times is performed as indicated by block 624. A first estimated completion time can be

0   calculated by dividing the number of words or pages  
     remaining in the book by the current reading pace of  
     the user. As a result, the first estimated  
     completion time estimates how long it would take the  
     user to complete the book at his or her current  
5   reading pace. A second estimated completion time is  
     calculated by dividing the number of words or pages  
     remaining in the book by a desired reading pace. The  
     second estimated completion time estimates how long  
     it would take the user to complete the book at the  
10   desired reading pace.

     As indicated by block 626, a step of displaying  
     each estimated completion time is performed. Each  
     estimated completion time can be displayed within a  
     corresponding sentence as illustrated in FIG. 15.

15       As indicated by block 630, a step of calculating  
     a necessary reading pace to satisfy a predetermined  
     reading goal is performed. The predetermined reading  
     goal can be in the form of a time duration within  
     which a user wishes to complete the pages remaining  
20   in the book. Here, the necessary reading pace is  
     calculated by dividing the number of pages remaining  
     in the book by the time duration. A step of  
     displaying the necessary reading pace to satisfy the  
     reading goal is then performed as indicated by block  
25   632.

     As indicated by block 634, a step of displaying  
     one or more graphical pacing controls is performed.  
     As illustrated in FIG. 15, the one or more graphical  
     pacing controls can include a graphical slider bar  
30   such as the graphical slider bar 294 used for  
     modifying the desired reading pace, and a graphical  
     switch such as the graphical switch 296 which is used  
     for enabling and disabling an automatic pacing of the  
     text using a pacing routine.

0       As indicated by block 636, a user-initiated  
event is received. As indicated by block 640, if the  
user-initiated event is indicative of the user  
selecting the page back portion of the touchscreen  
130, then execution of the pacing control subroutine  
5 is terminated. Upon terminating the pacing control  
subroutine, the system control page is displayed on  
the touchscreen 130.

      If the user-initiated event is not indicative of  
the user selecting the page back portion, then a step  
10 of updating a pacing parameter based on the user-  
initiated event is performed as indicated by block  
642. Examples of the pacing parameter include the  
desired reading pace and the reading goal. After  
updating the pacing parameter, flow of the subroutine  
15 is directed back to block 624 to recalculate an  
estimated completion time and the necessary reading  
pace.

      FIG. 34 is a flow diagram of steps performed in  
an embodiment of the font selection subroutine. The  
20 font selection subroutine is executed in block 414 in  
the event loop of FIG. 25.

      As indicated by block 650, a step of displaying  
a plurality of words using a corresponding plurality  
of combinations of different fonts and different  
25 sizes is performed. More specifically, each word is  
displayed using a specific font and a specific size  
in accordance with the combination corresponding  
thereto. Optionally, the step of displaying the  
plurality of words can include displaying a  
30 respective font name for each of the combinations.  
As another option, the step of displaying the  
plurality of words can include displaying a single  
textual expression using the corresponding plurality  
of combinations.

0       As indicated by block 652, a step of receiving a user-initiated event indicative of the user selecting one word of the plurality of words is performed. This selection indicates which font/size combination is desired by the user.

5       As indicated by block 654, a step of updating a primary font parameter and a primary size parameter is performed. The primary font parameter and the primary size parameter are updated in accordance with the font/size combination selected by the user. As  
10 indicated by block 656, a step of automatically returning to displaying the title page is performed after receiving the user-initiated event selecting the one word. Thereafter, a subsequent step of displaying text of a book includes displaying the  
15 text using the primary font in a size at least the primary size.

FIG. 35 is a flow diagram of steps performed in an embodiment of the system control subroutine. The system control subroutine is executed in the step  
20 indicated by block 416 in the event loop of FIG. 25.

As indicated by block 660, a step of displaying a plurality of graphical controls for setting system parameters is performed. The system parameters can include display parameters such as a contrast  
25 parameter, a tint parameter, and a color parameter. The system parameters can also include a sound parameter.

As indicated by block 662, a step of receiving a user-initiated event is performed. If the user-  
30 initiated event is indicative of the user selecting the page back portion of the touchscreen, as indicated by block 664, then execution of the system control subroutine is completed. For other user-

0 initiated events, a step of updating a system  
parameter is performed as indicated by block 668.

Thus, there has been described herein a concept,  
as well as several embodiments including preferred  
embodiments of an electronic book and method of  
5 capturing and storing a quote therein.

Because the various embodiments of the present  
invention provide a quotable quotes feature in which  
quote data representative of a portion of a book is  
stored and maintained in an internal machine-readable  
10 storage medium when a removable machine-readable  
storage medium is removed from the electronic book,  
they provide a significant improvement in that the  
portion of the book can be recalled regardless of  
whether the removable machine-readable storage medium  
15 is installed.

Additionally, the various embodiments of the  
present invention store and maintain source data  
representative of the author and/or the title of the  
book so that the user can identify the source of the  
20 quote.

It will be apparent to those skilled in the art  
that the disclosed invention may be modified in  
numerous ways and may assume many embodiments other  
than the preferred form specifically set out and  
25 described above.

Accordingly, it is intended by the appended  
claims to cover all modifications of the invention  
which fall within the true spirit and scope of the  
invention.

30 What is claimed is:

## 0 Claims

1. A method of capturing and storing a quote in an electronic book having a book-shaped housing, the method comprising the steps of:

- 5 (a) reading machine-readable data from a removable machine-readable storage medium installed in the electronic book, the machine-readable data representative of text from a book;
- (b) displaying the text represented by the machine-readable data;
- 10 (c) receiving a user-initiated event which selects a portion of the text;
- (d) storing quote data representative of the portion of the text in an internal machine-readable storage medium within the electronic book;
- 15 (e) storing source data representative of at least one of an author of the book and a title of the book in the internal machine-readable storage medium; and
- 20 (f) maintaining the quote data and the source data in the internal machine-readable storage medium when the removable machine-readable storage medium is removed from the electronic book.

25 2. The method of claim 1 further comprising the steps of:

- (g) retrieving the quote data and the source data from the internal machine-readable storage medium when the removable machine-readable storage medium is removed from the electronic book; and
- 30 (h) displaying the portion of the text and at least one of the author of the book and the title of the book represented by the quote data and the source data.

0

3. The method of claim 1 wherein the text is displayed on a touchscreen integrated in the electronic book, and wherein the user-initiated event includes a user sliding a finger over the portion of the text on the touchscreen.

5

4. The method of claim 1 further comprising the steps of:

after receiving the user-initiated event,  
10 displaying a plurality of text marking options including a quote capture option; and  
receiving a second user-initiated event indicative of a user selecting the quote capture option.

15

5. The method of claim 4 wherein the text and the plurality of text marking options are displayed on a touchscreen integrated in the electronic book, and wherein the second user-initiated event includes  
20 a user touching a portion of the touchscreen associated with the quote capture option.

6. The method of claim 5 wherein the plurality of text marking options is displayed so that view of  
25 the text is maintained.

- 0           7.    An electronic book comprising:  
          a book-shaped housing having a first housing  
          member pivotably connected to a second housing member  
          to facilitate opening and closing in a book-like  
          manner;
- 5           an interface which receives a removable machine-  
          readable storage medium containing machine-readable  
          data representative of text from a book;  
          a processor housed by the book-shaped housing  
          and in communication with the interface, the  
10          processor operative to read the machine-readable data  
          from the removable machine-readable storage medium  
          and to display the text represented by the machine-  
          readable data;
- a touchscreen in communication with the  
15          processor and integrated in the book-shaped housing  
          to be accessible when the book-shaped housing is  
          opened in the book-like manner, the touchscreen  
          operative to display the text represented by the  
          machine-readable data and to receive a user-initiated  
20          event which selects a portion of the text; and  
          an internal machine-readable storage medium in  
          communication with the processor and at least  
          partially contained within the book-shaped housing;  
          wherein the processor stores quote data  
25          representative of the portion of the text and source  
          data representative of at least one of an author of  
          the book and a title of the book in the internal  
          machine-readable storage medium, and wherein the  
          quote data and the source data are maintained in the  
30          internal machine-readable storage medium when the  
          removable machine-readable storage medium is removed  
          from the electronic book.
8.    The electronic book of claim 7 wherein the  
          source data stored in the internal machine-readable



0 storage medium is representative of both the author  
of the book and the title of the book.

9. The electronic book of claim 8 wherein the  
source data stored in the internal machine-readable  
5 storage medium further includes a copyright date of  
the book.

10. The electronic book of claim 8 wherein the  
source data stored in the internal machine-readable  
10 storage medium further includes a publisher of the  
book.

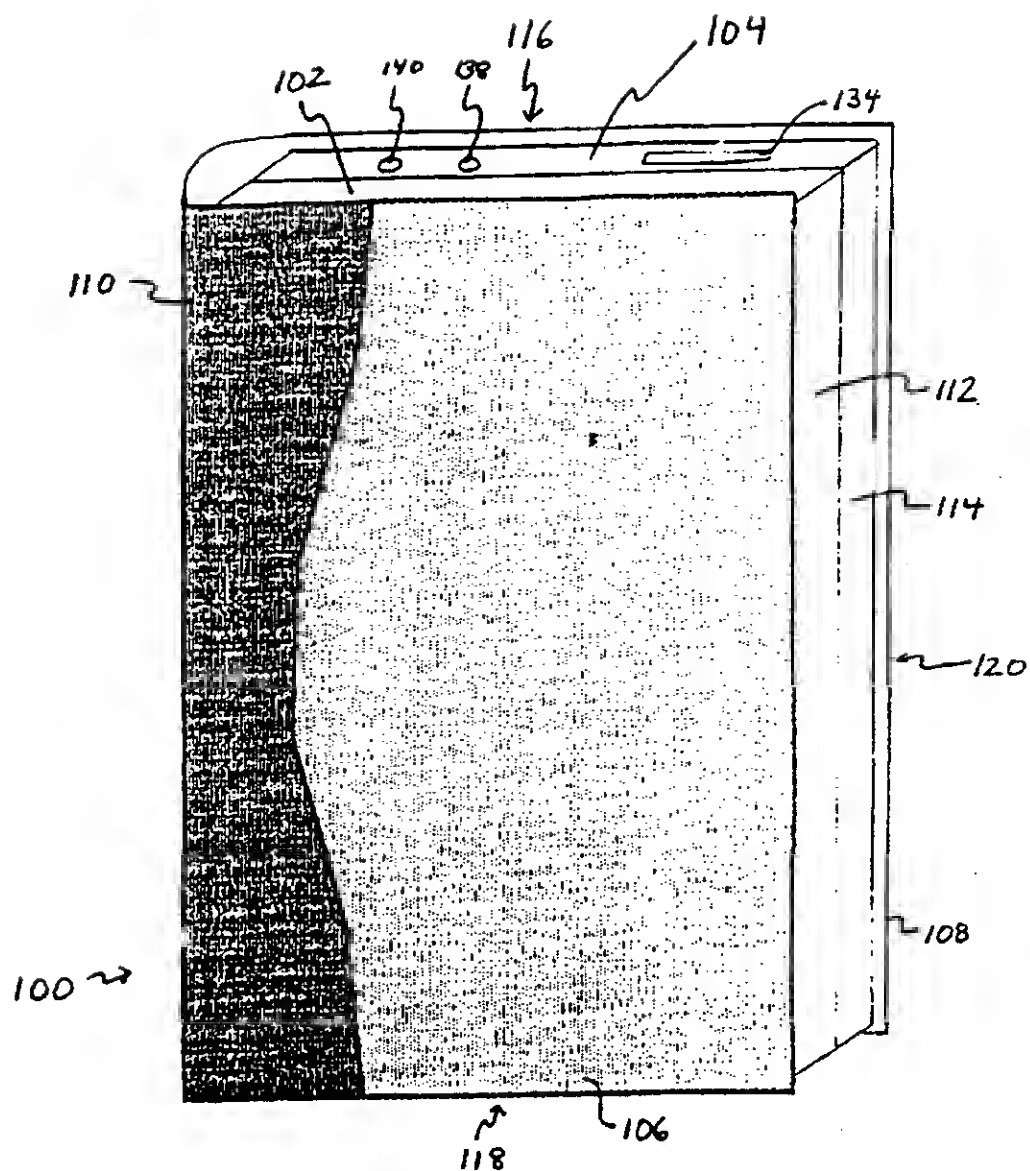
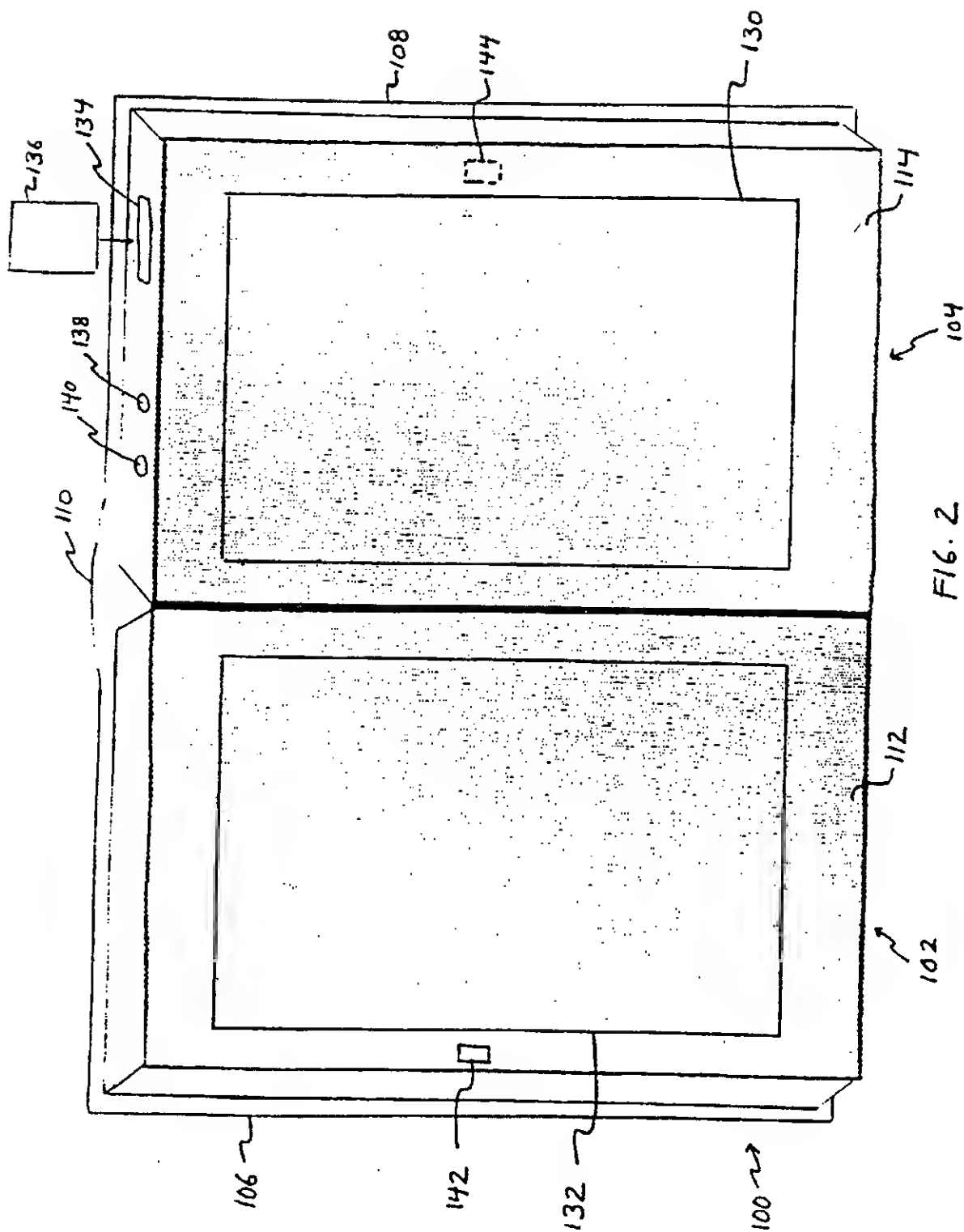


FIG. 1



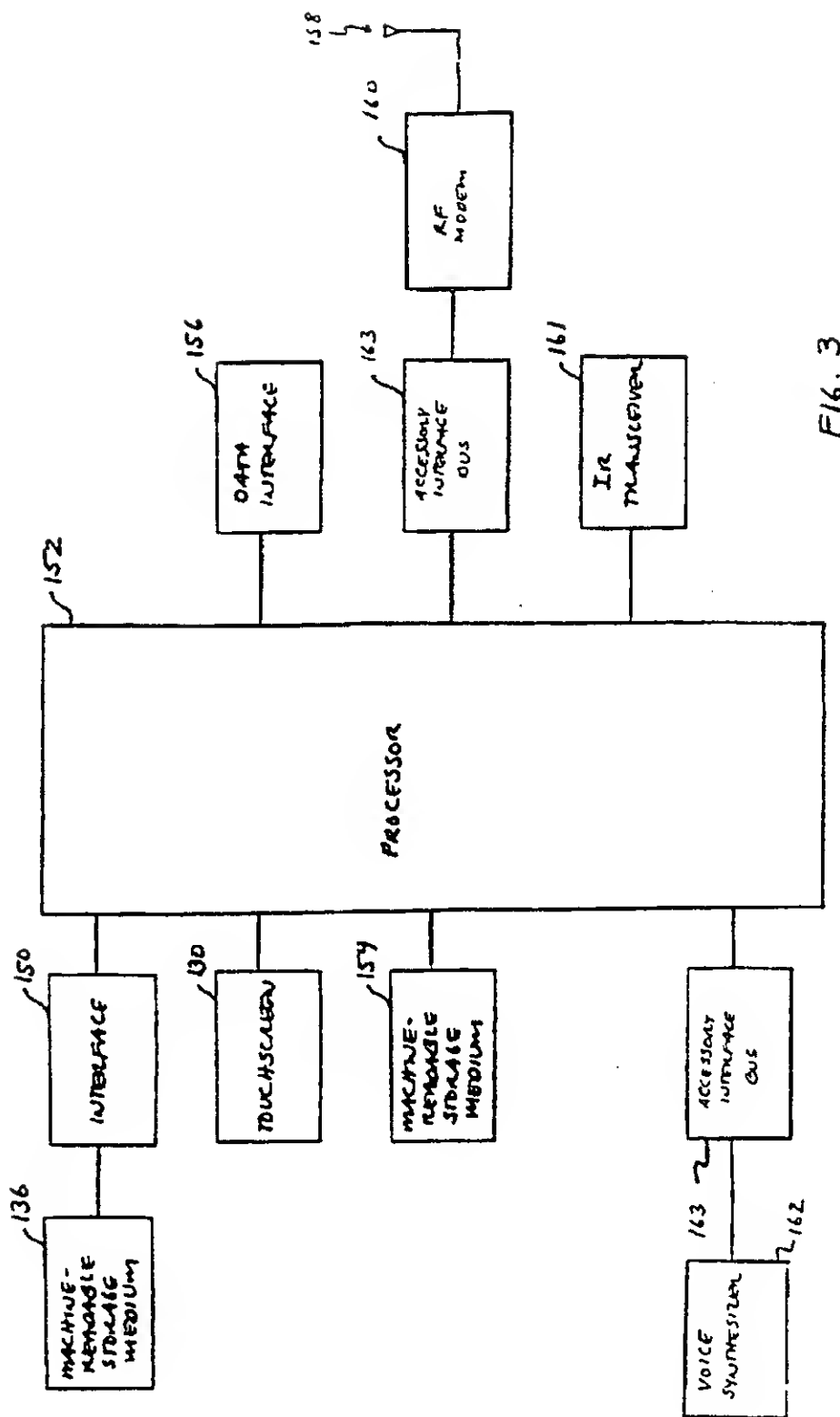
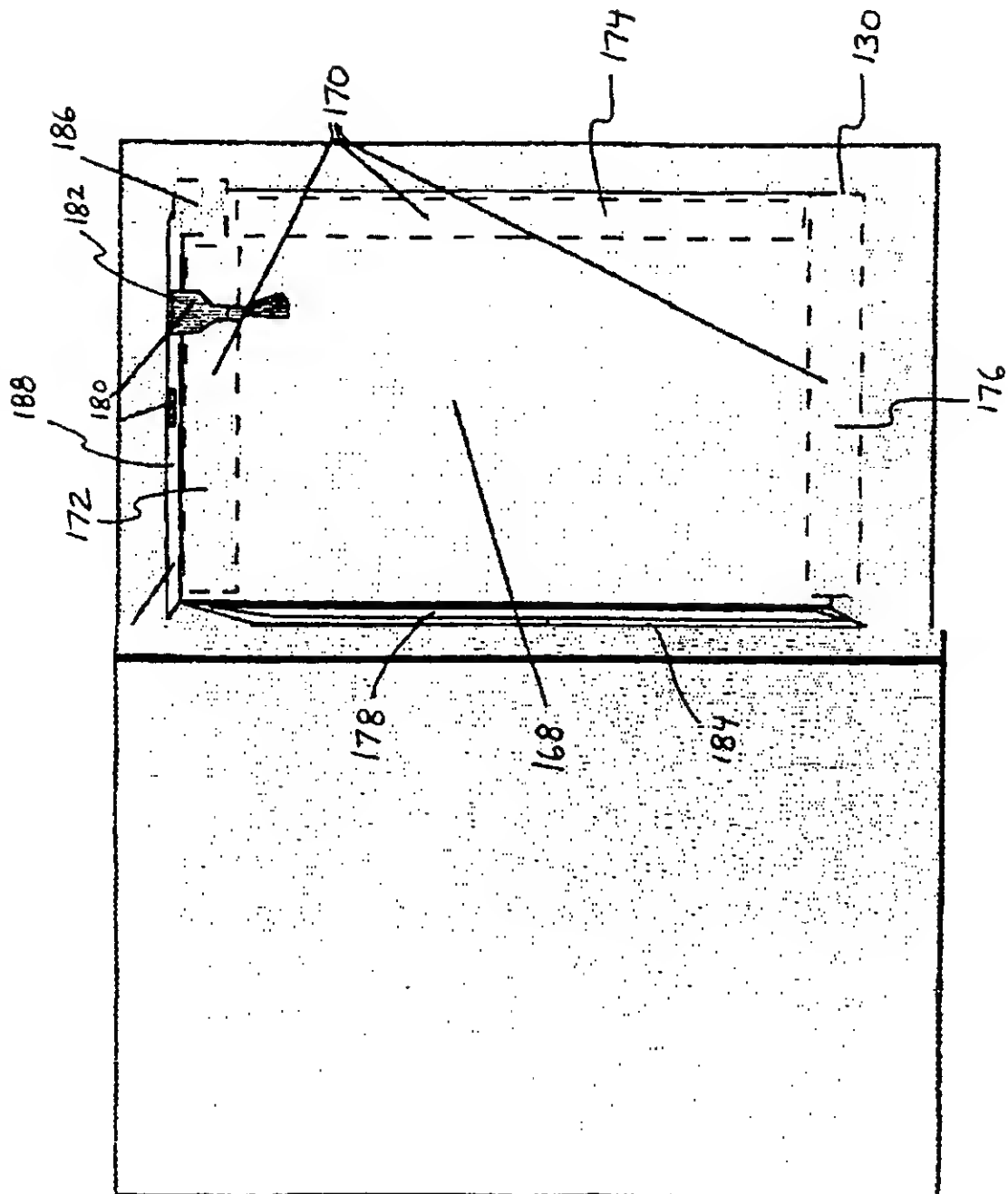


FIG. 3



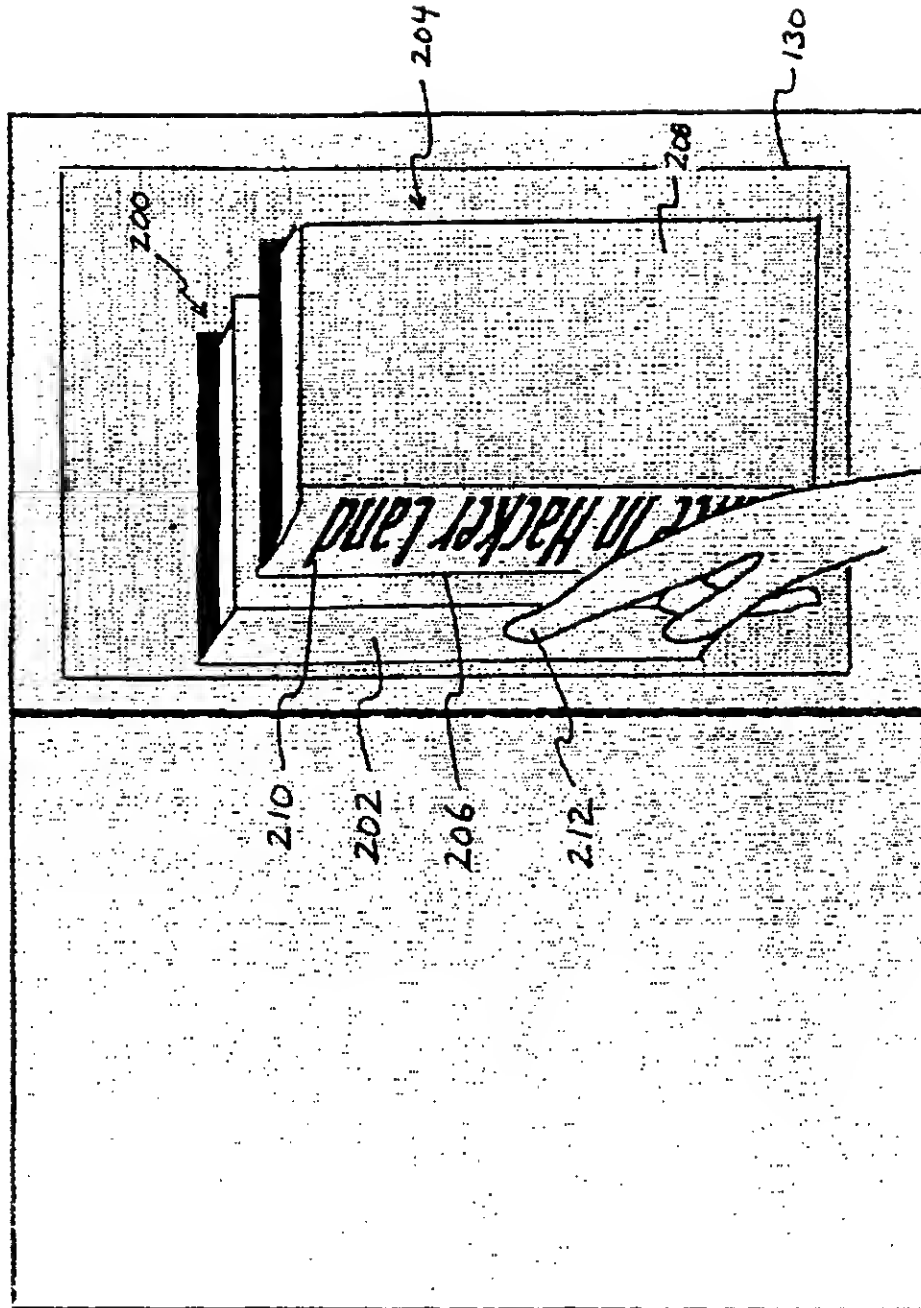


FIG. 5

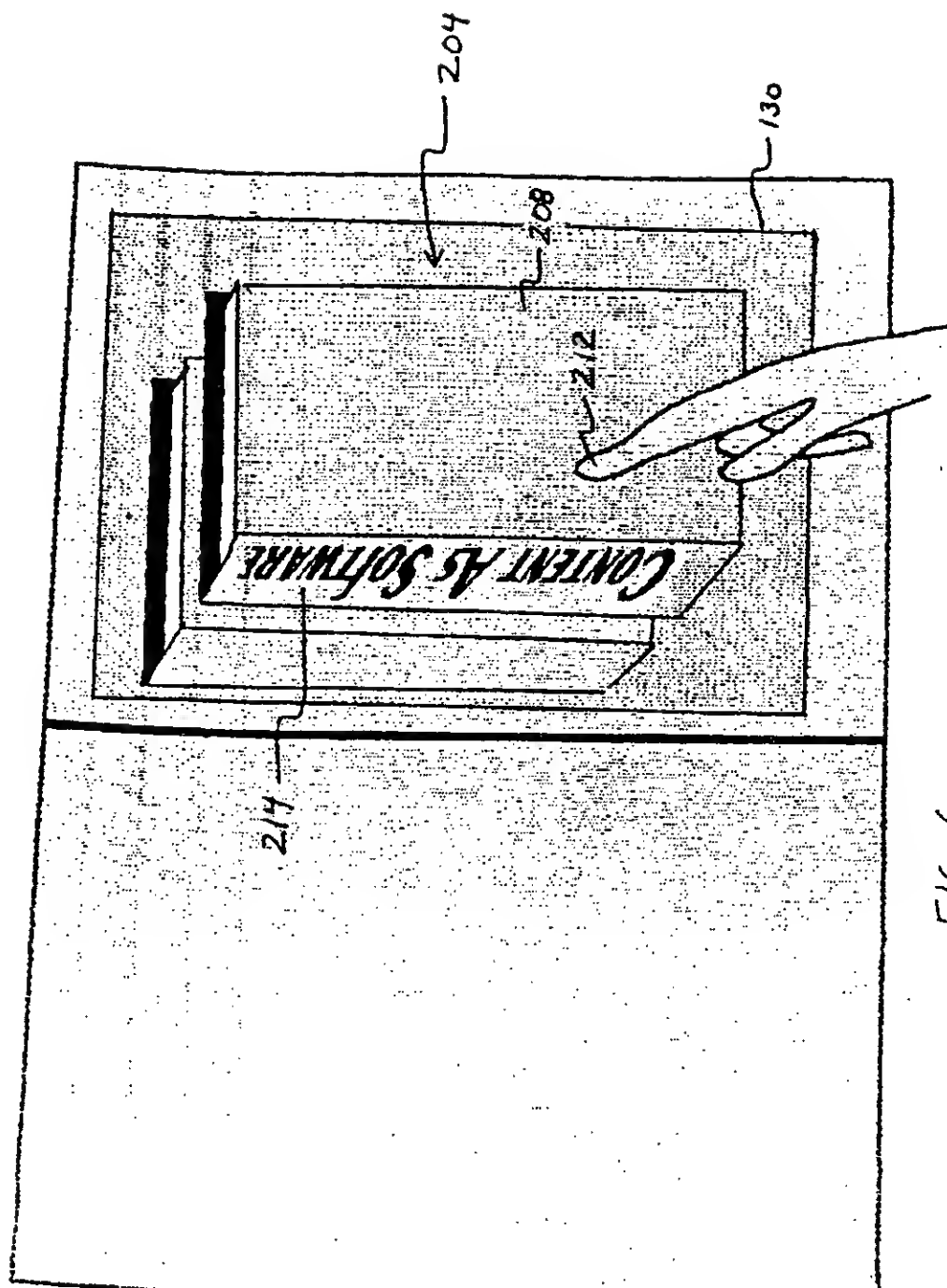


FIG. 6

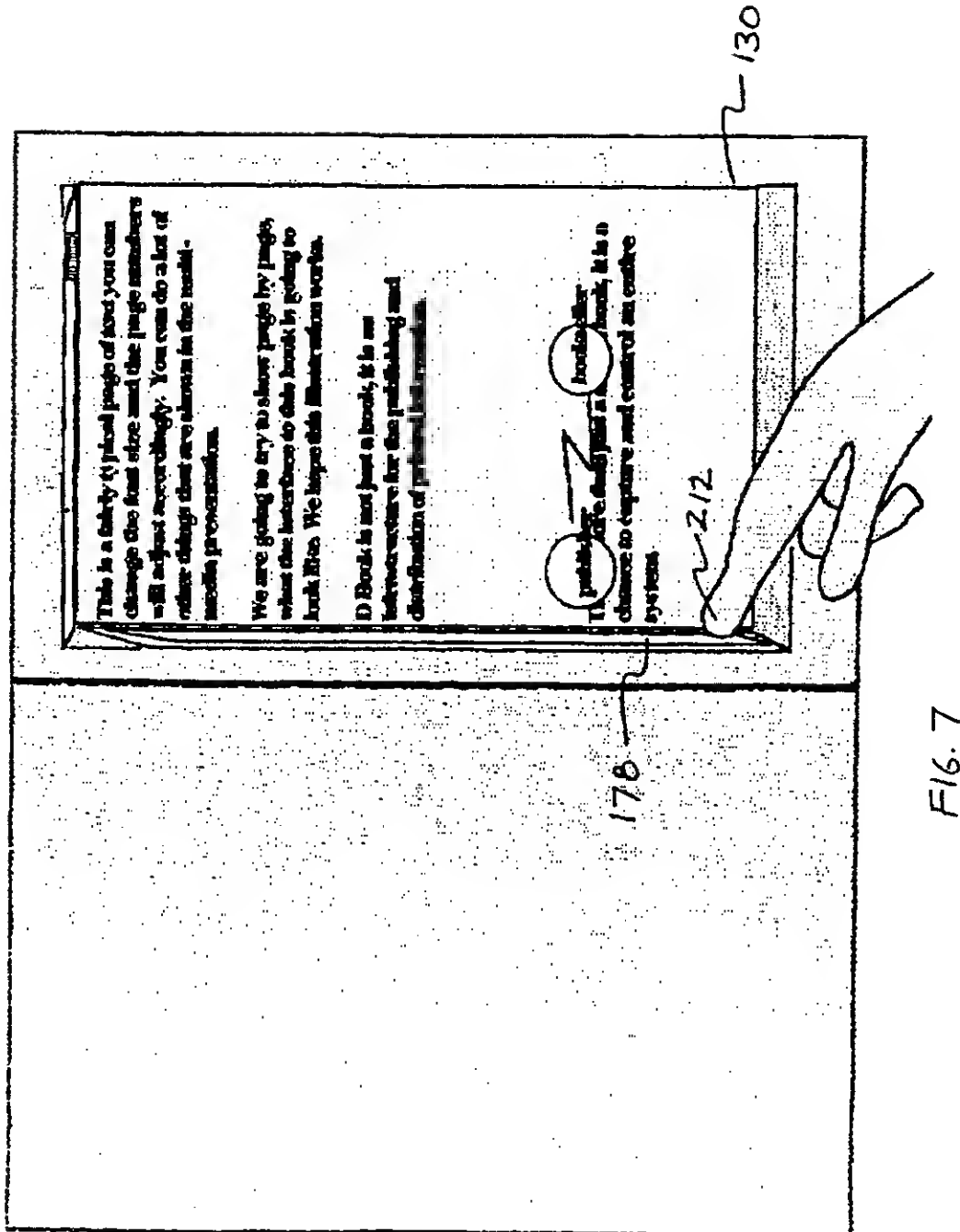


FIG. 7



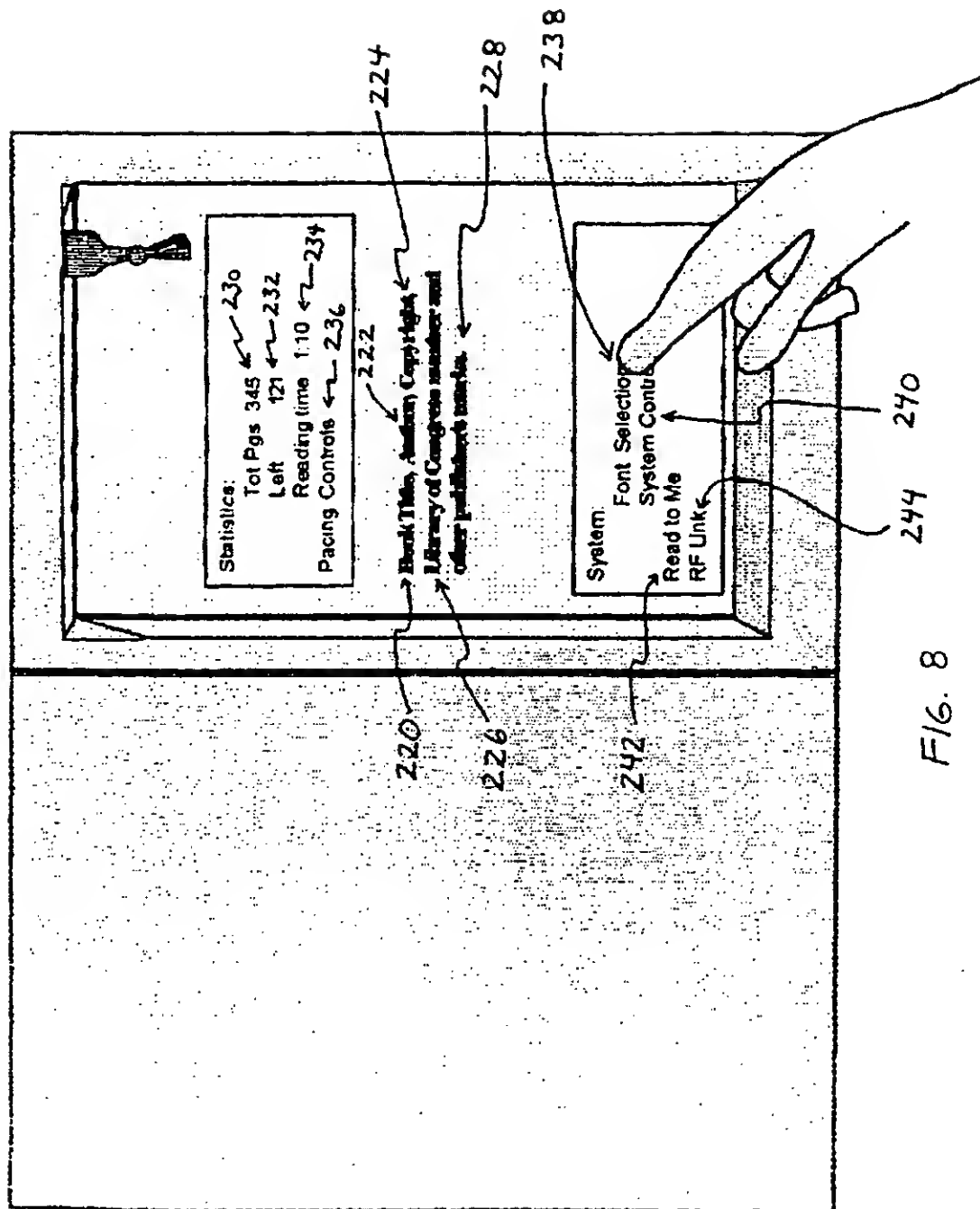


FIG. 8

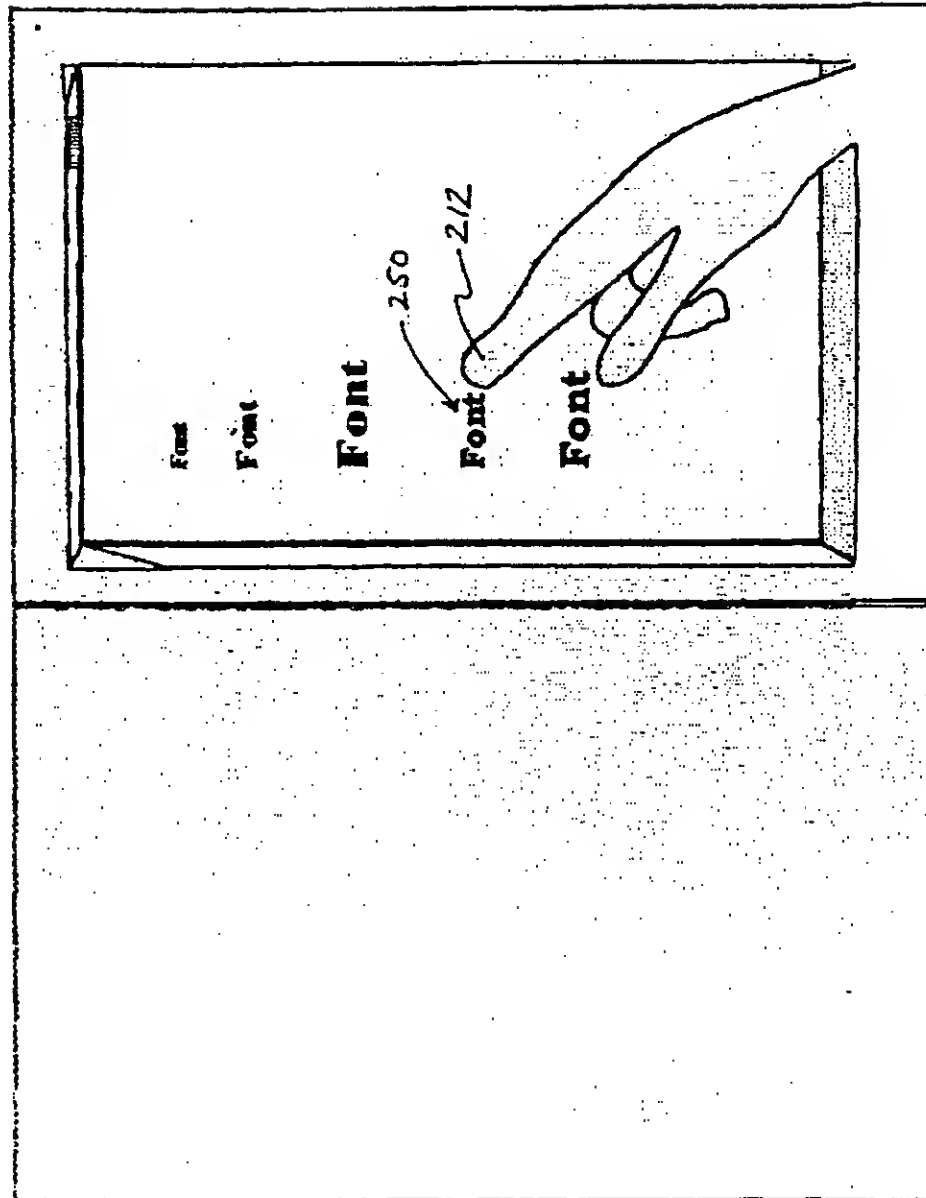


FIG. 9

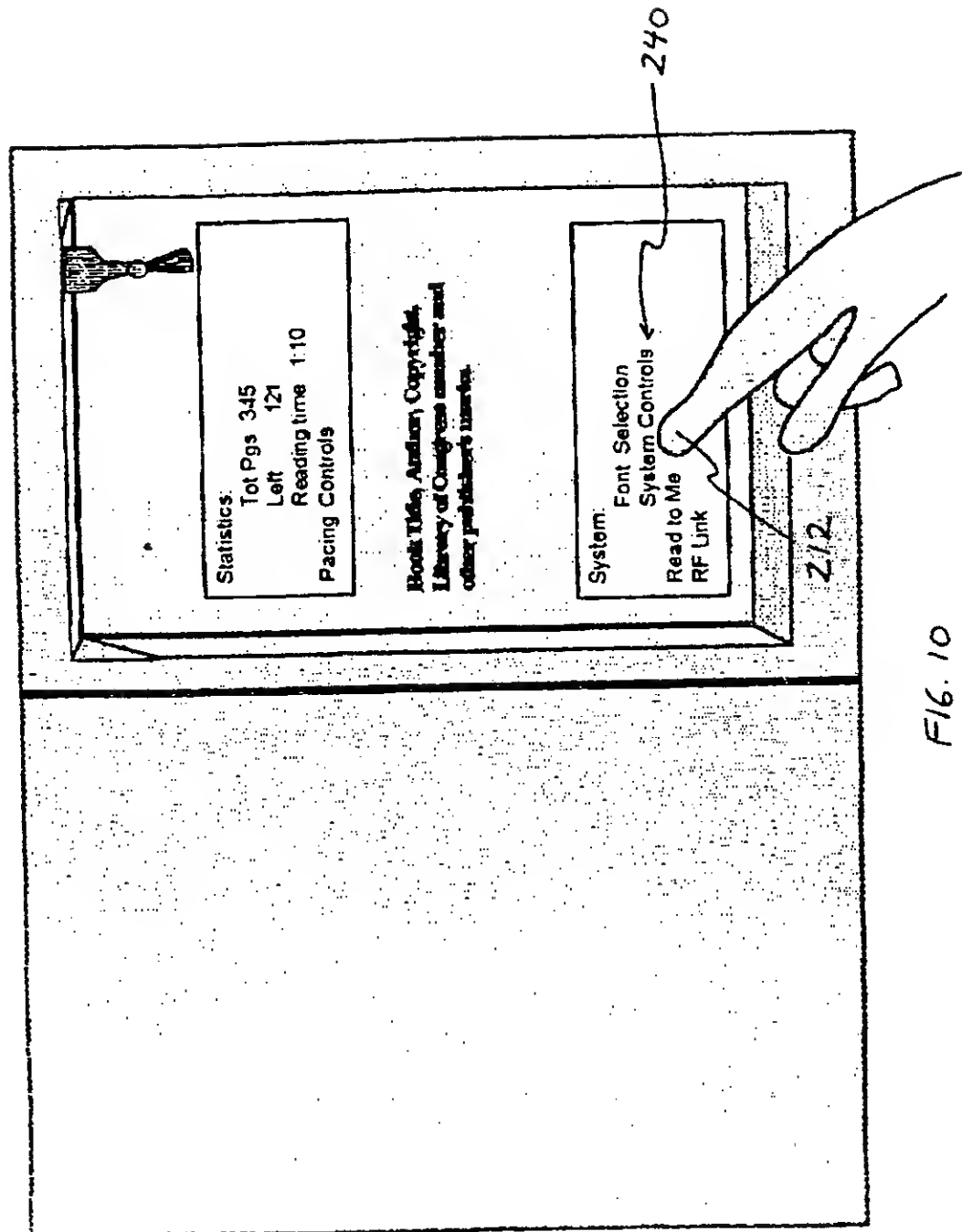


FIG. 10

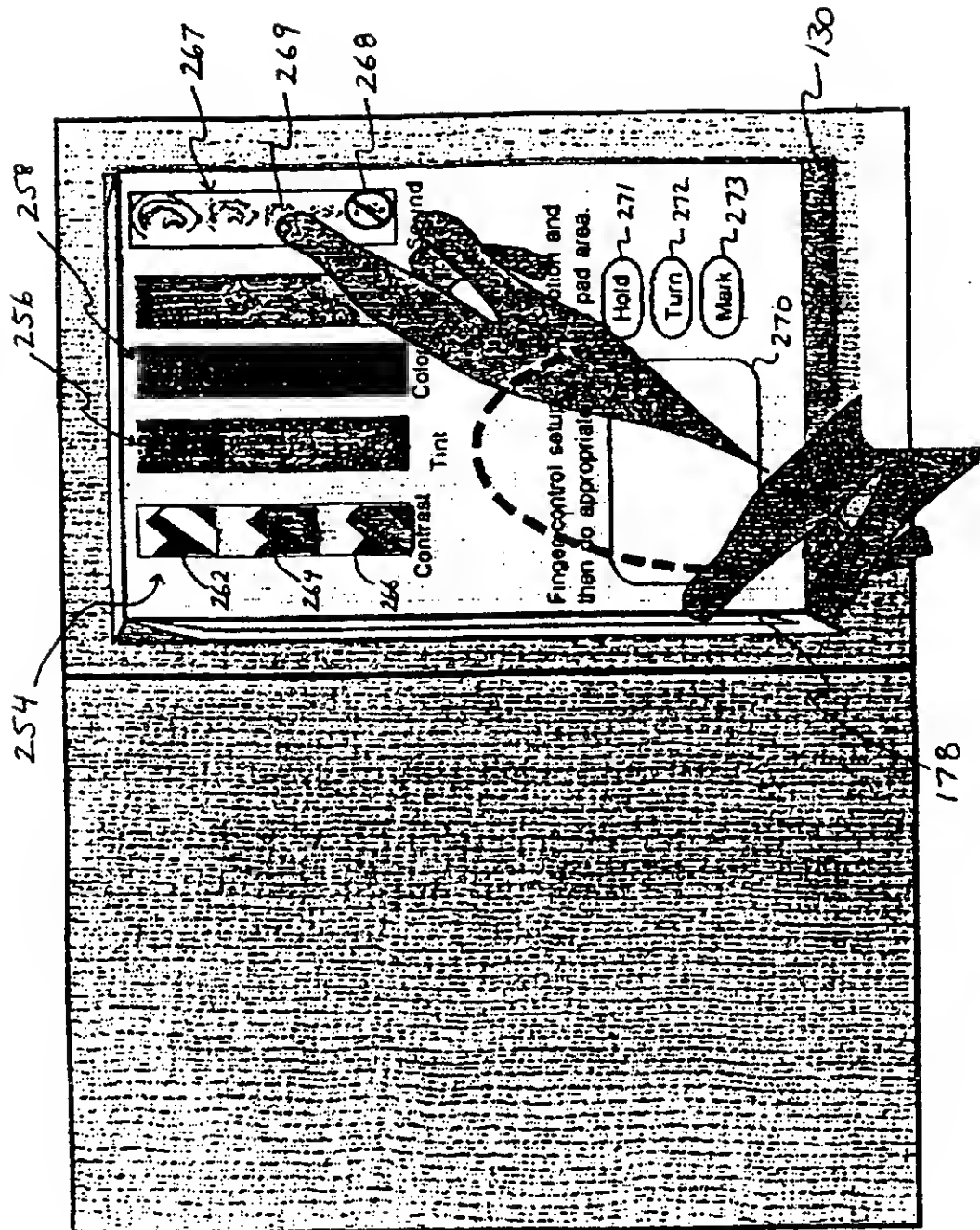


FIG. 11

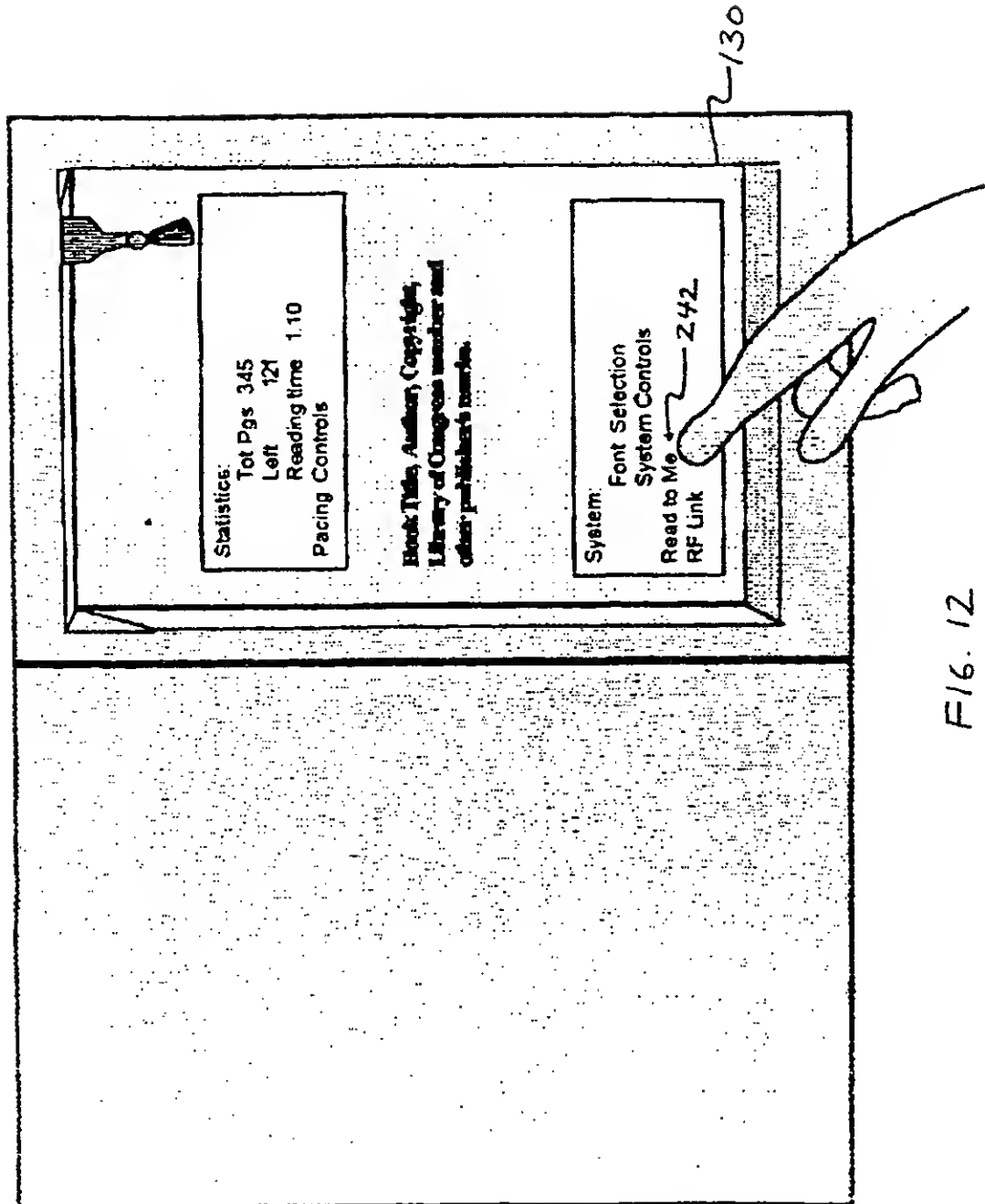
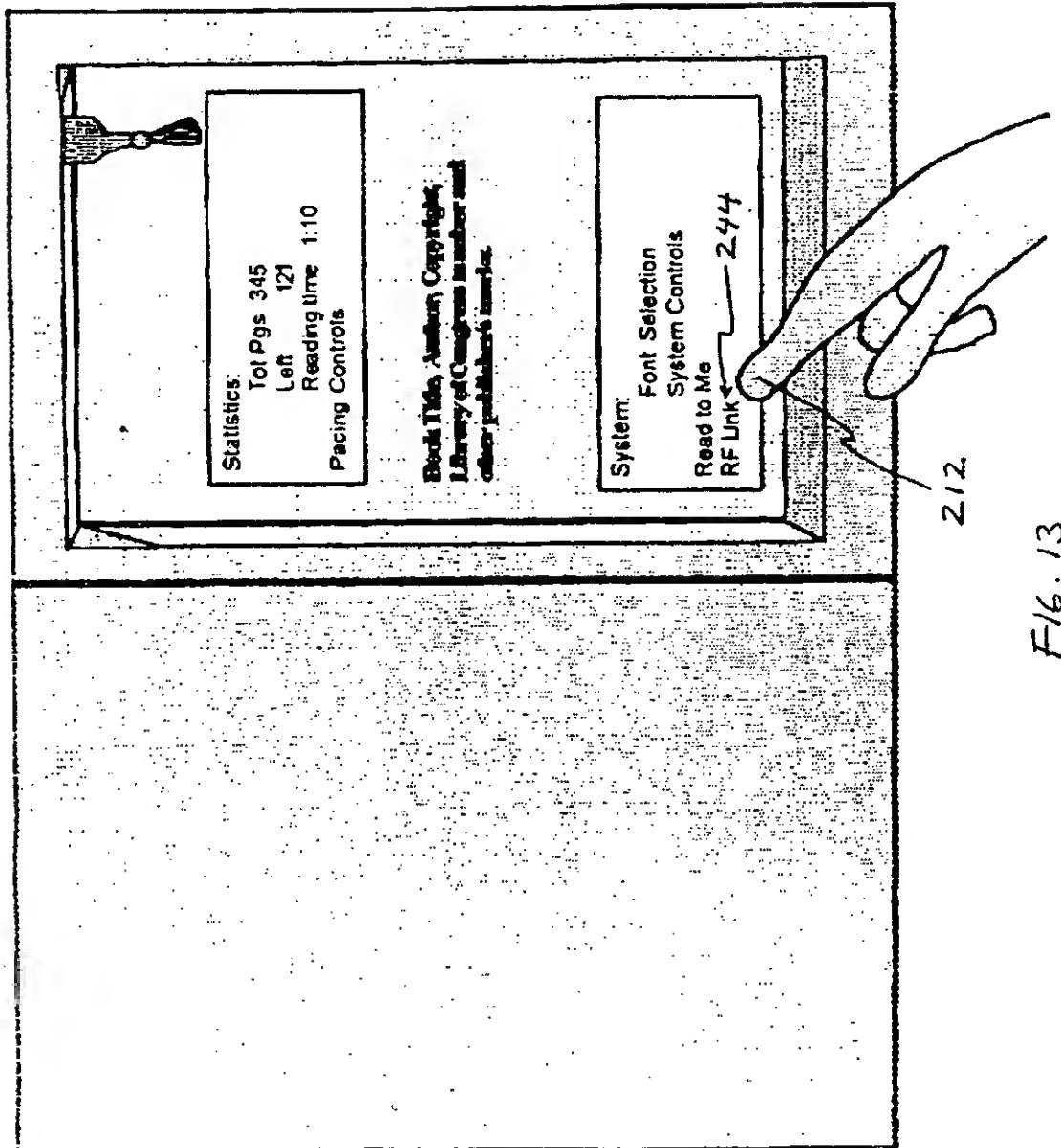


FIG. 12



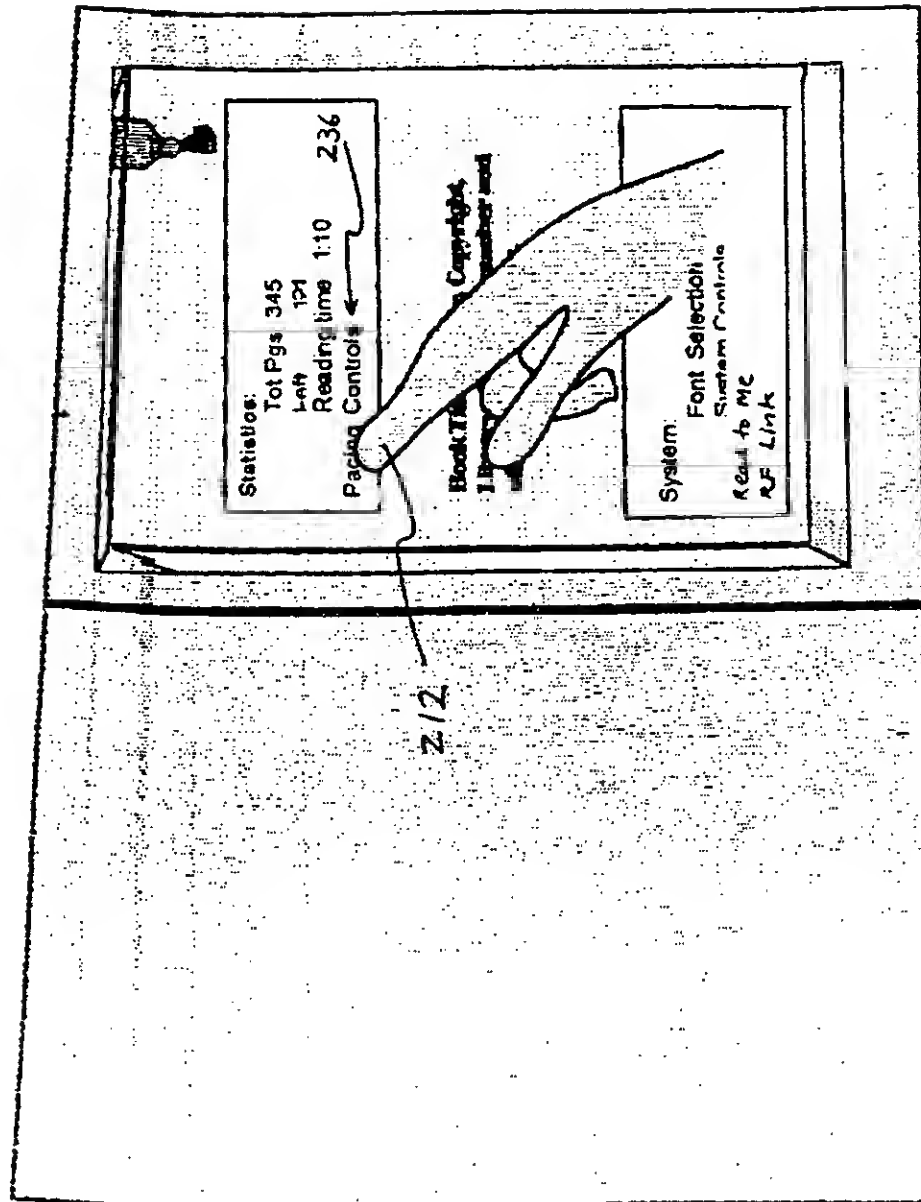


FIG. 14

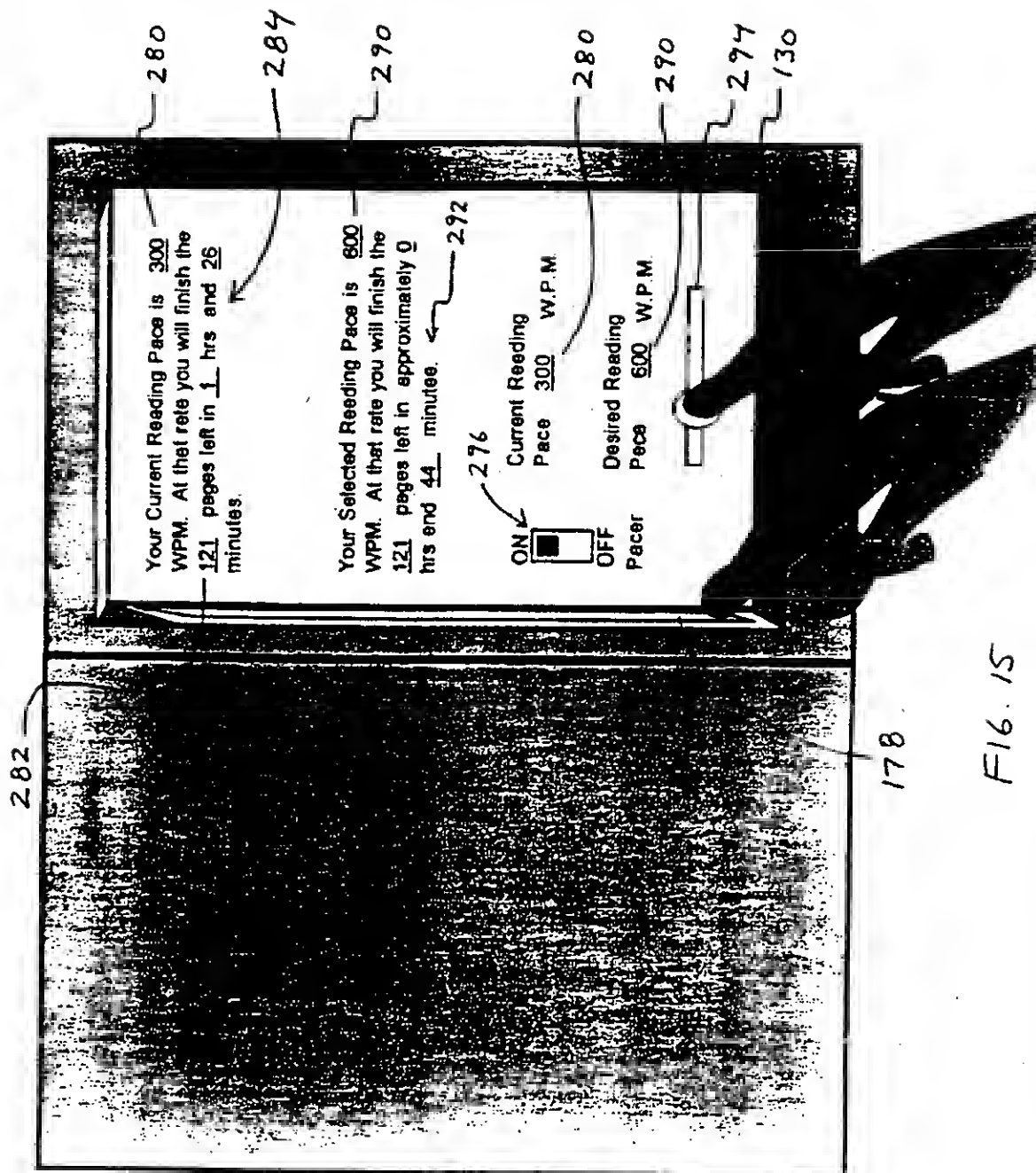


FIG. 15



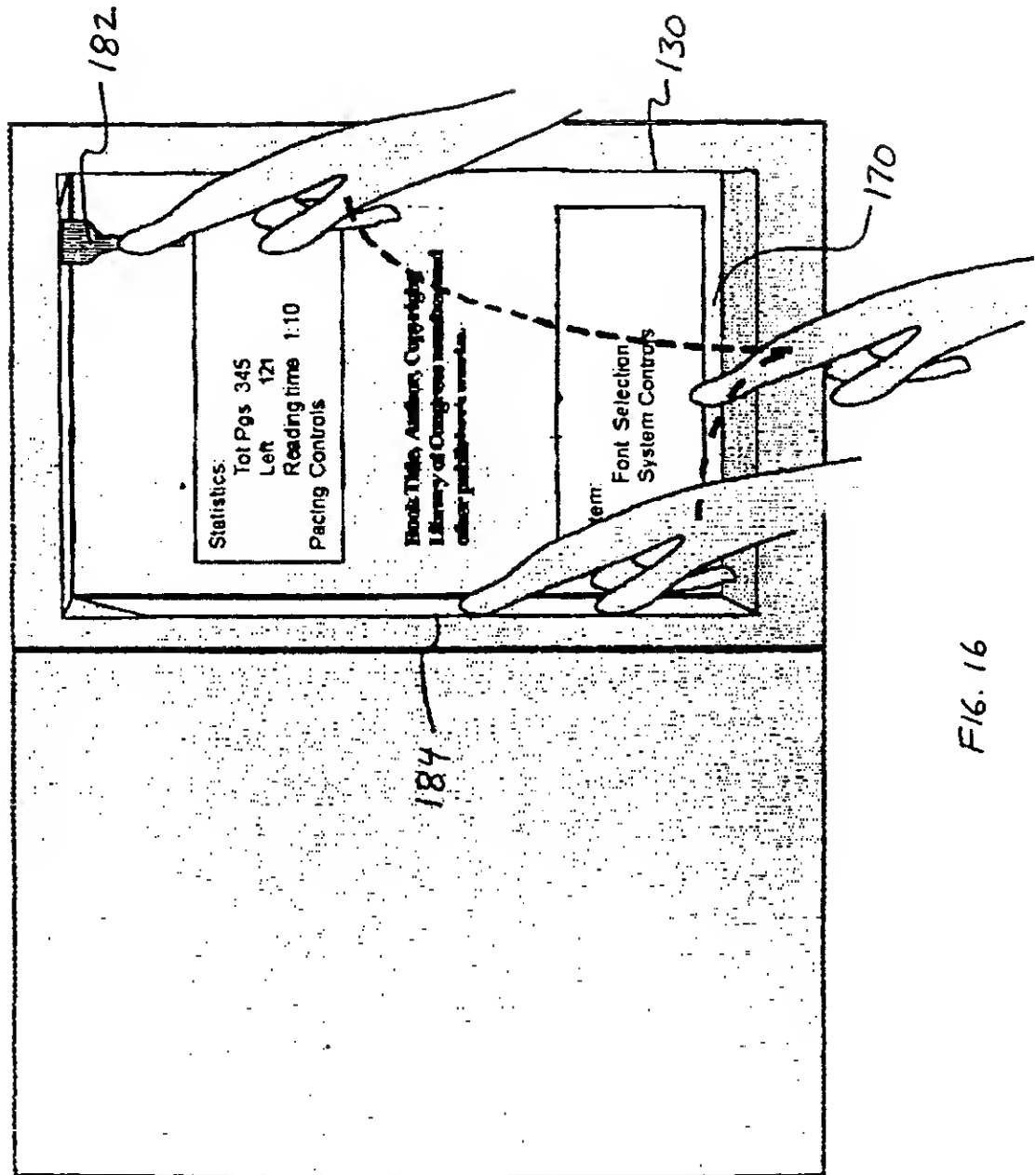


FIG. 16

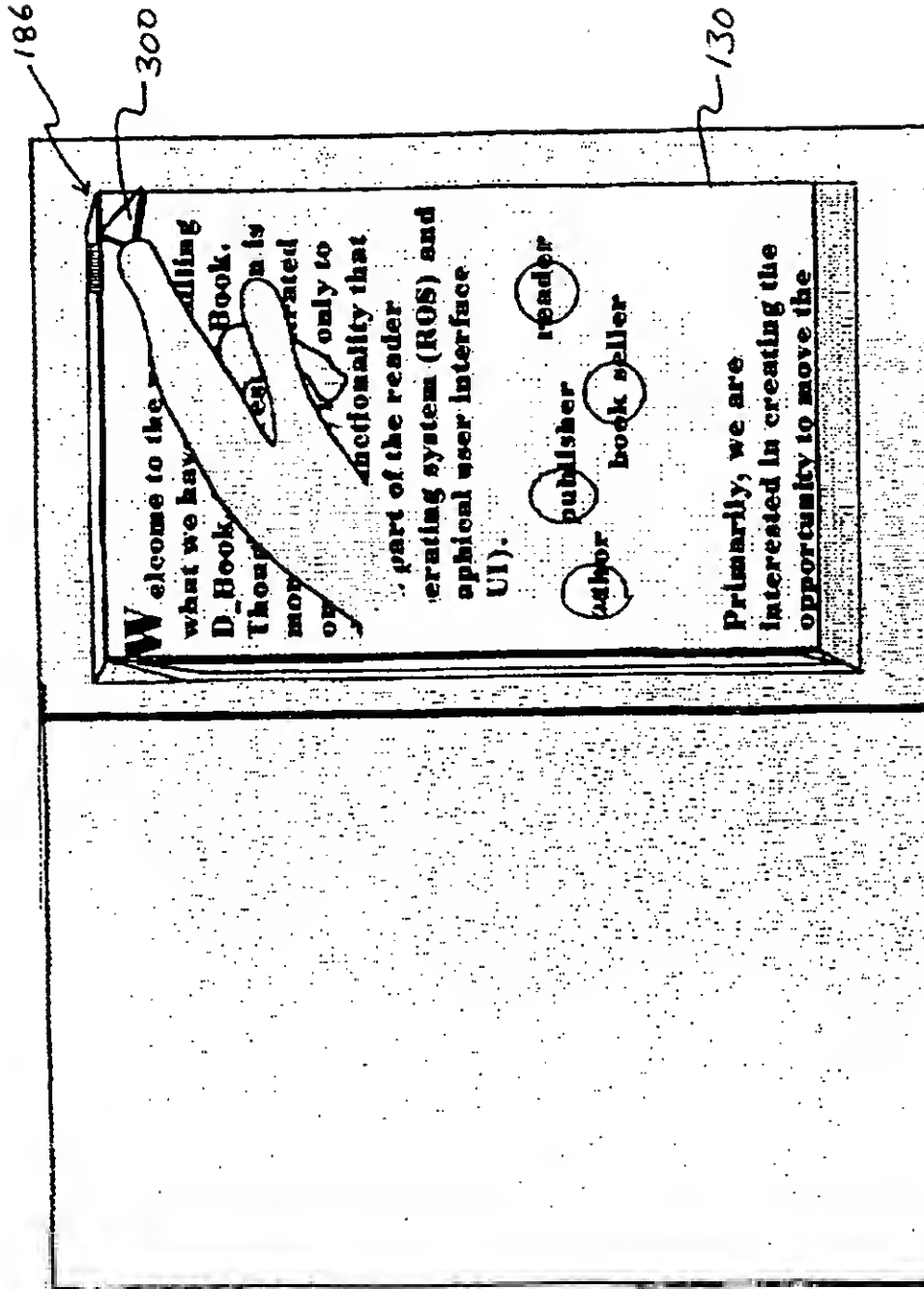


FIG. 17

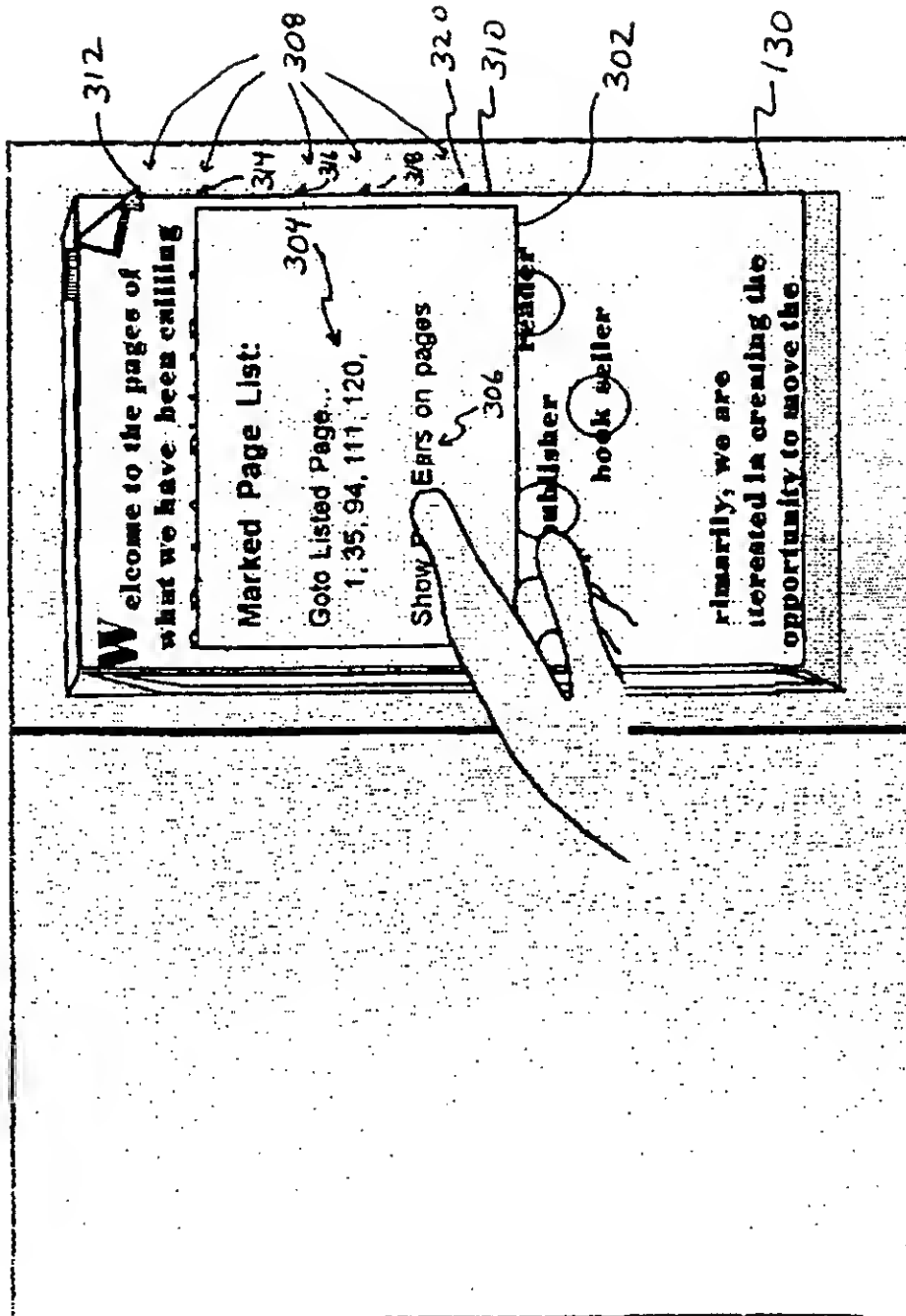


FIG. 18

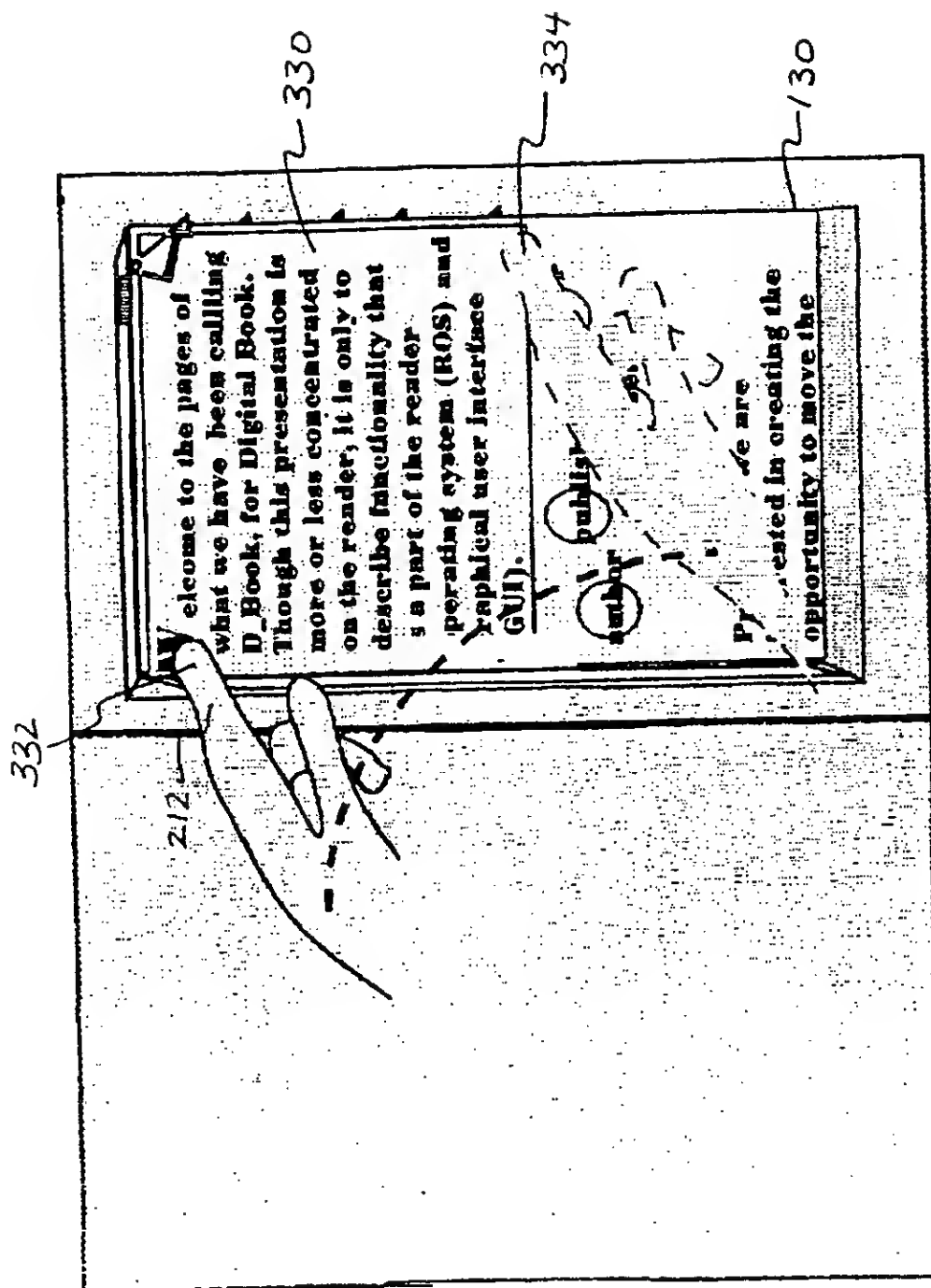
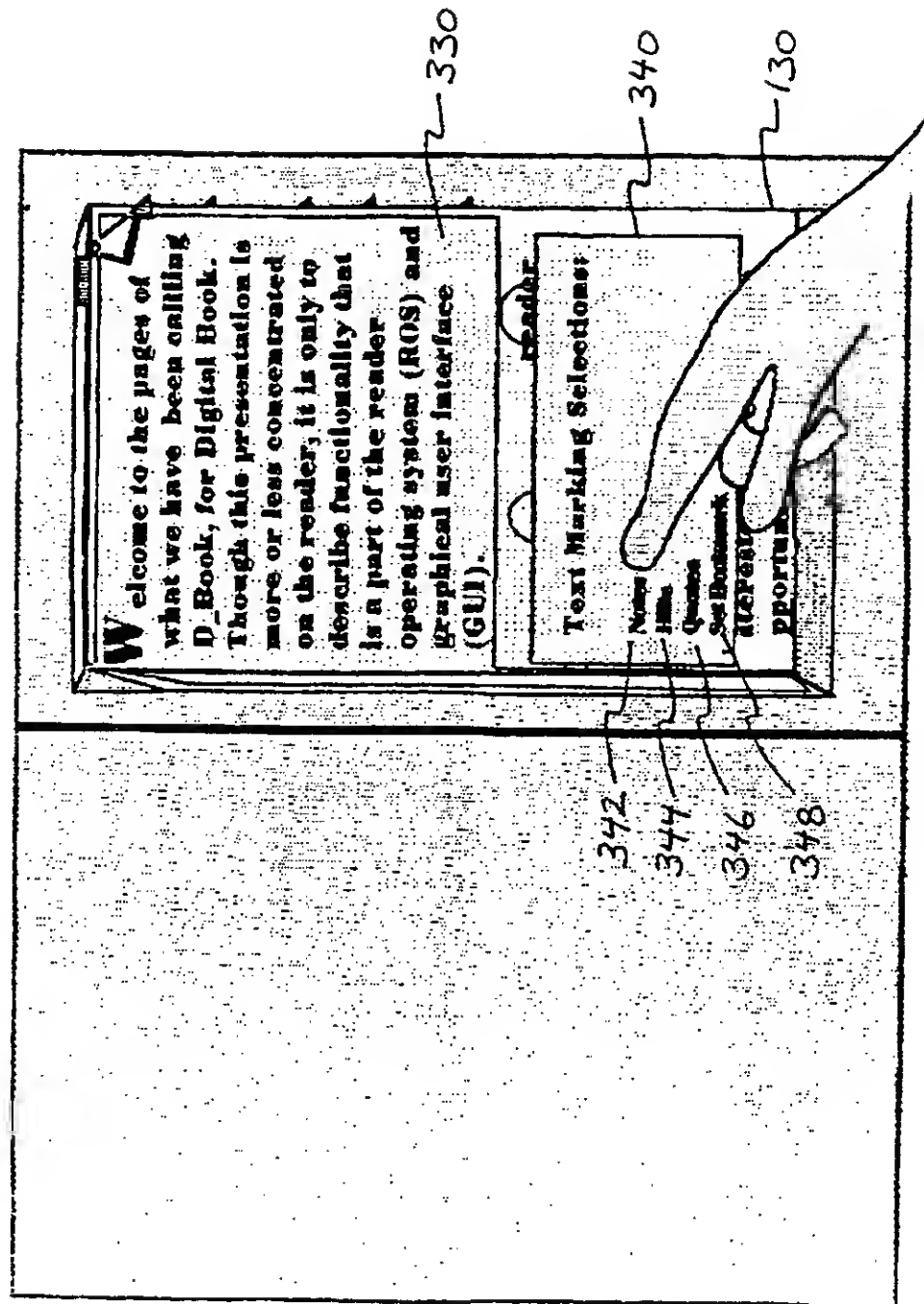


Fig. 19



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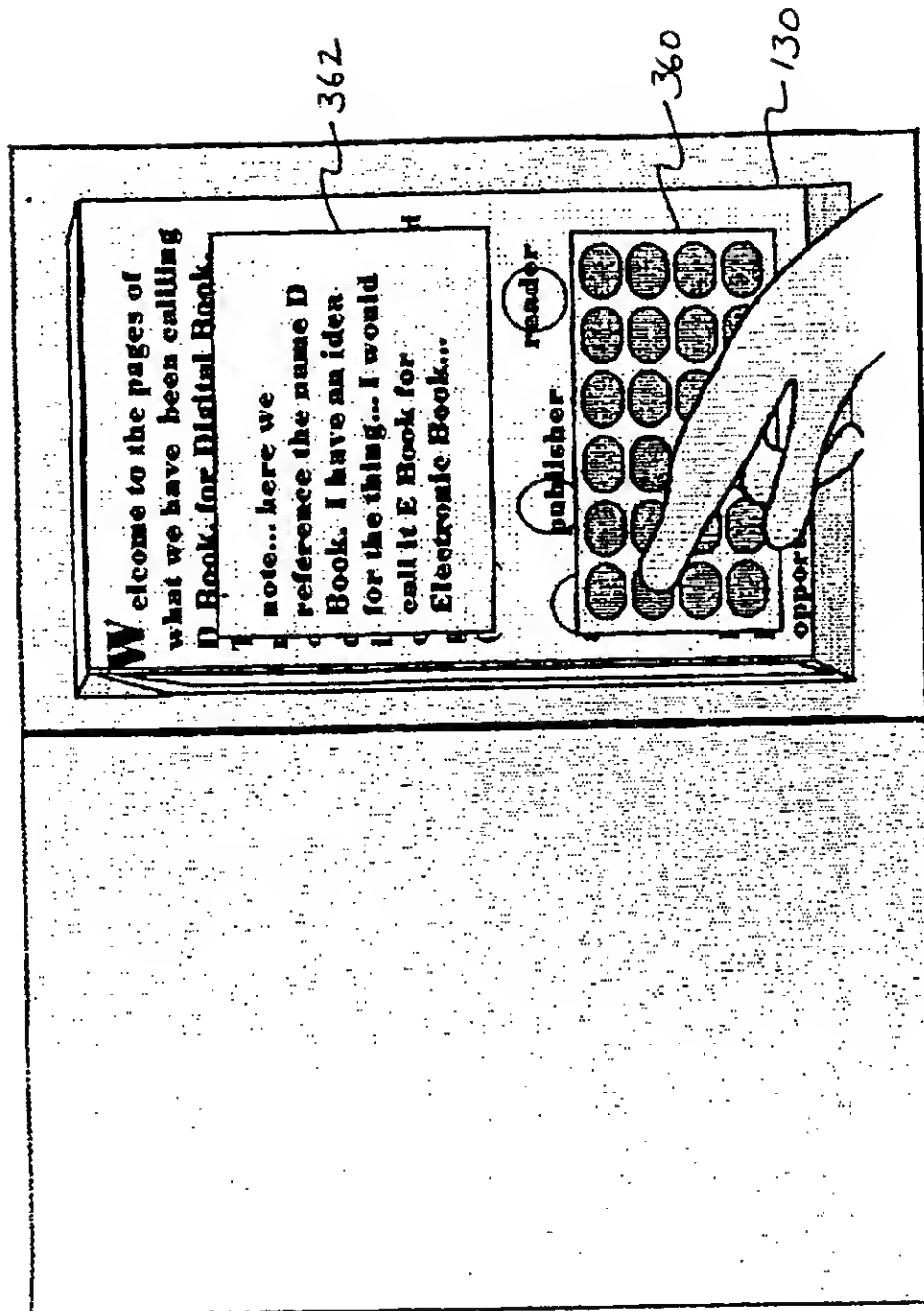
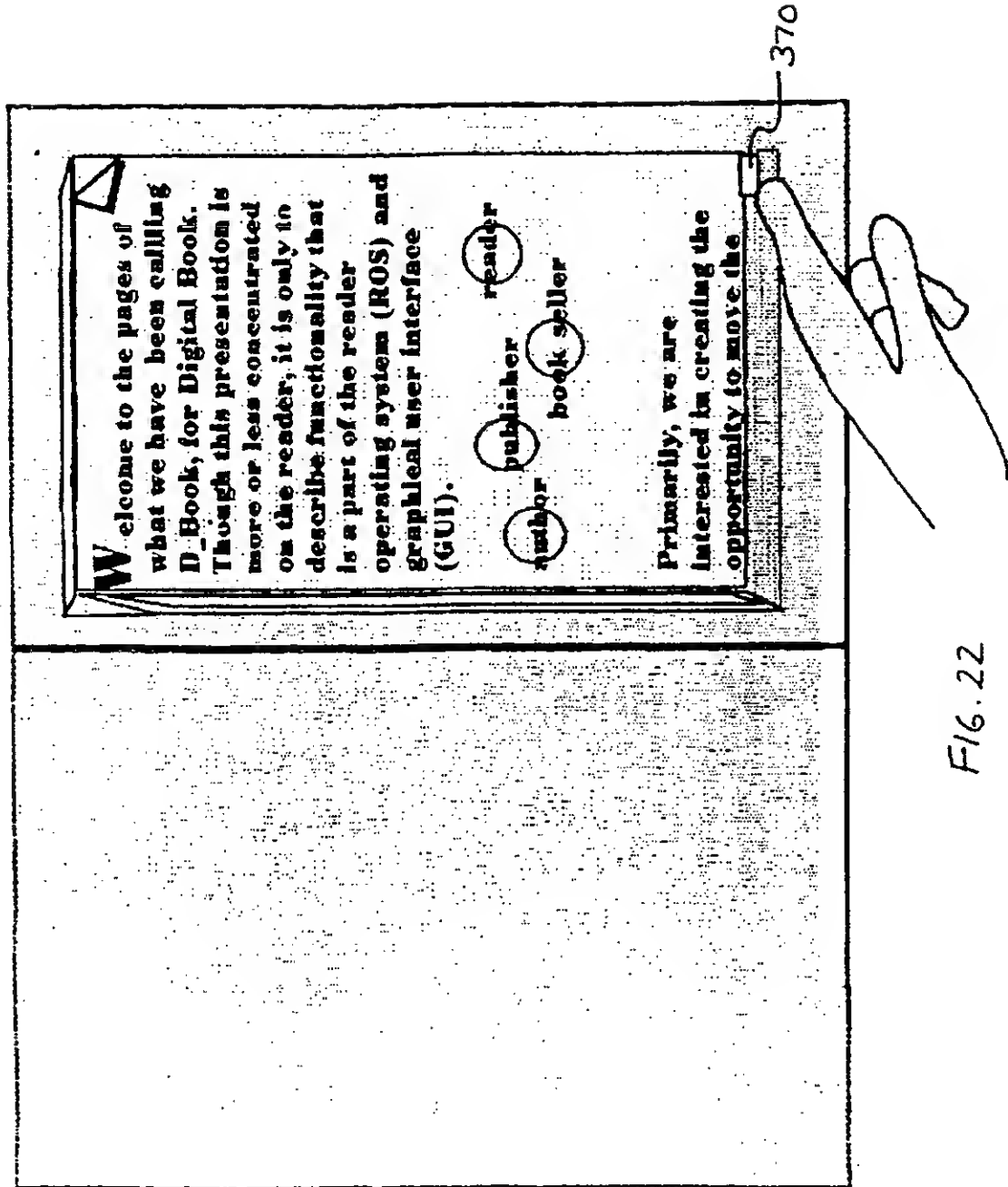
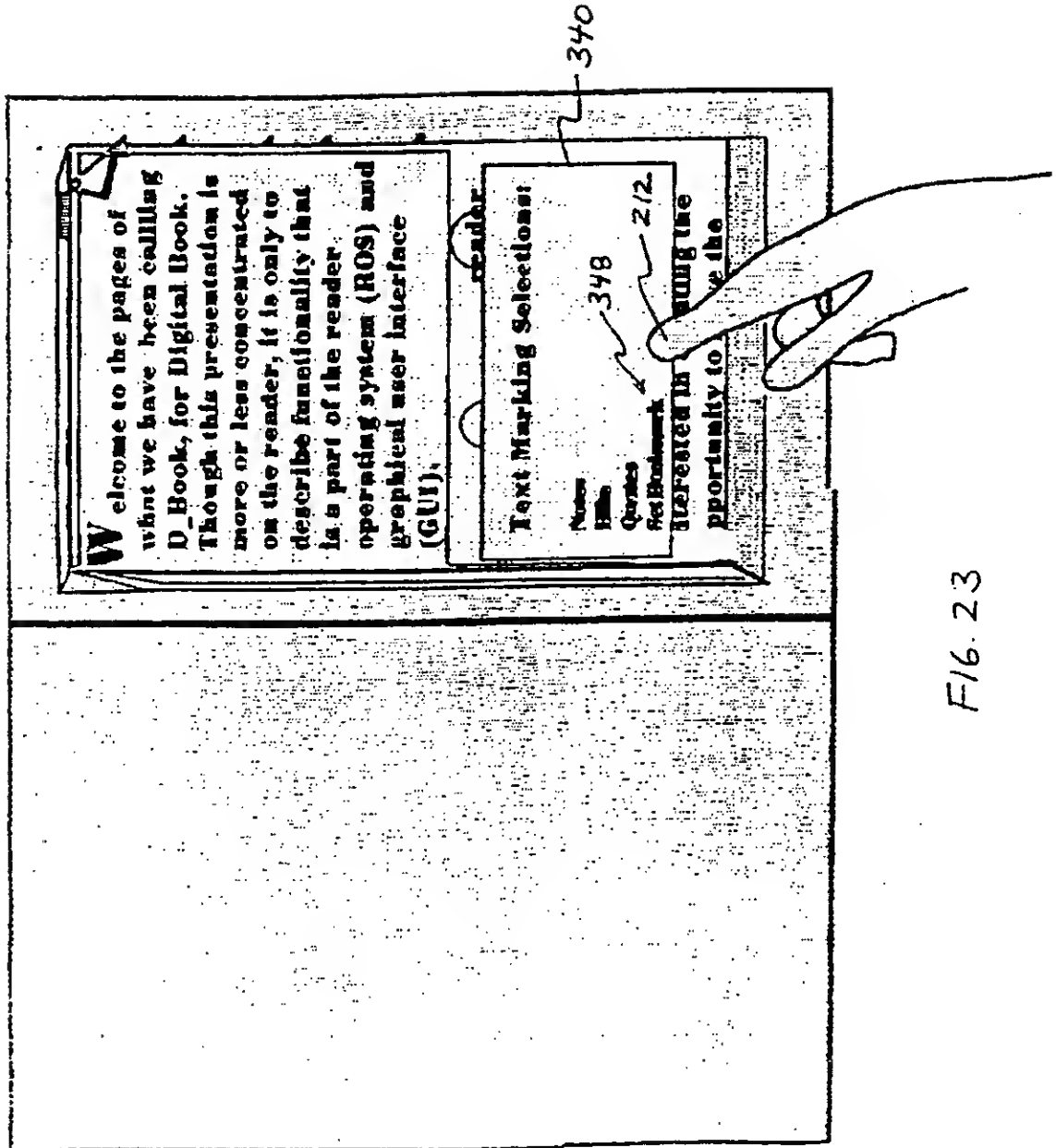


FIG. 21







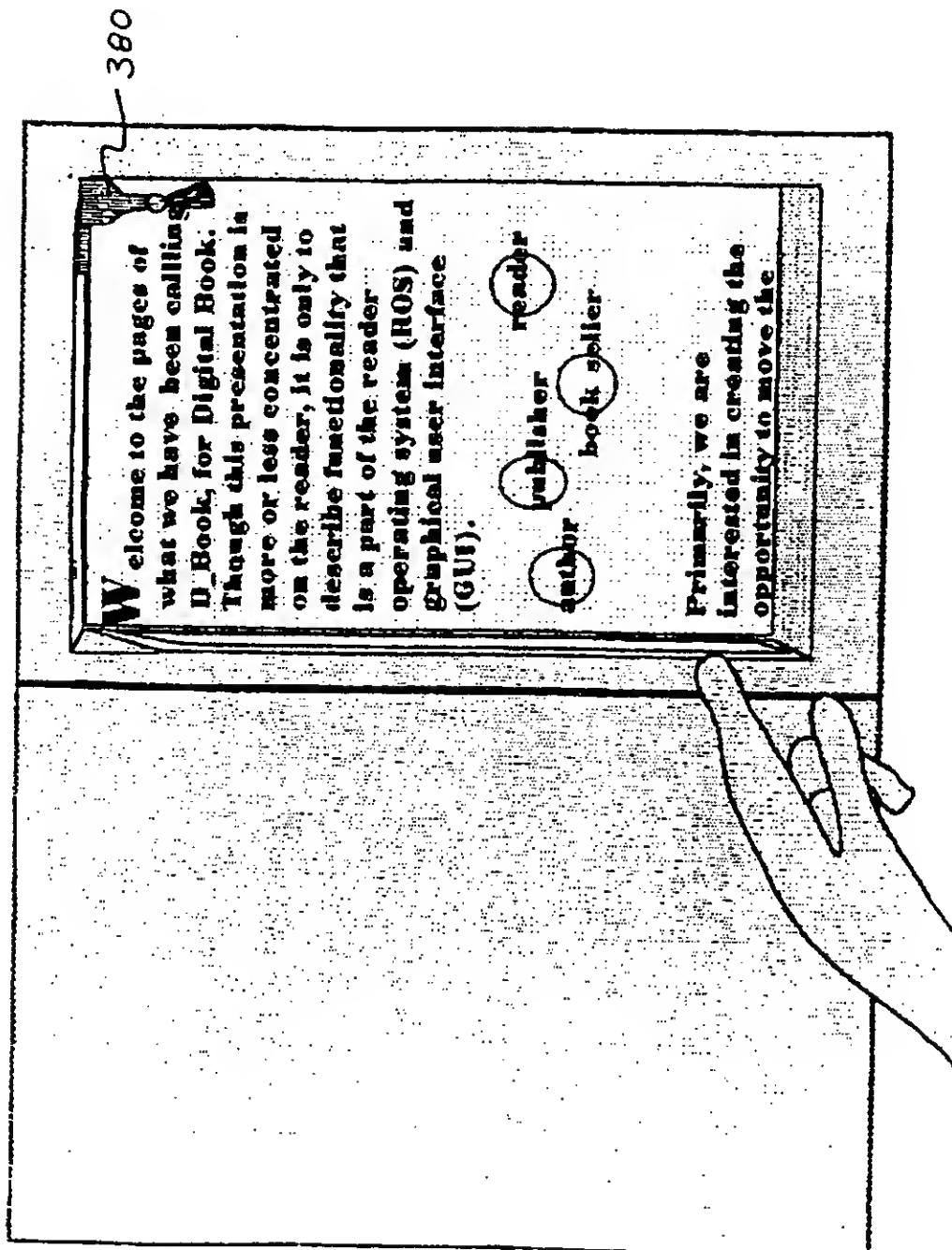
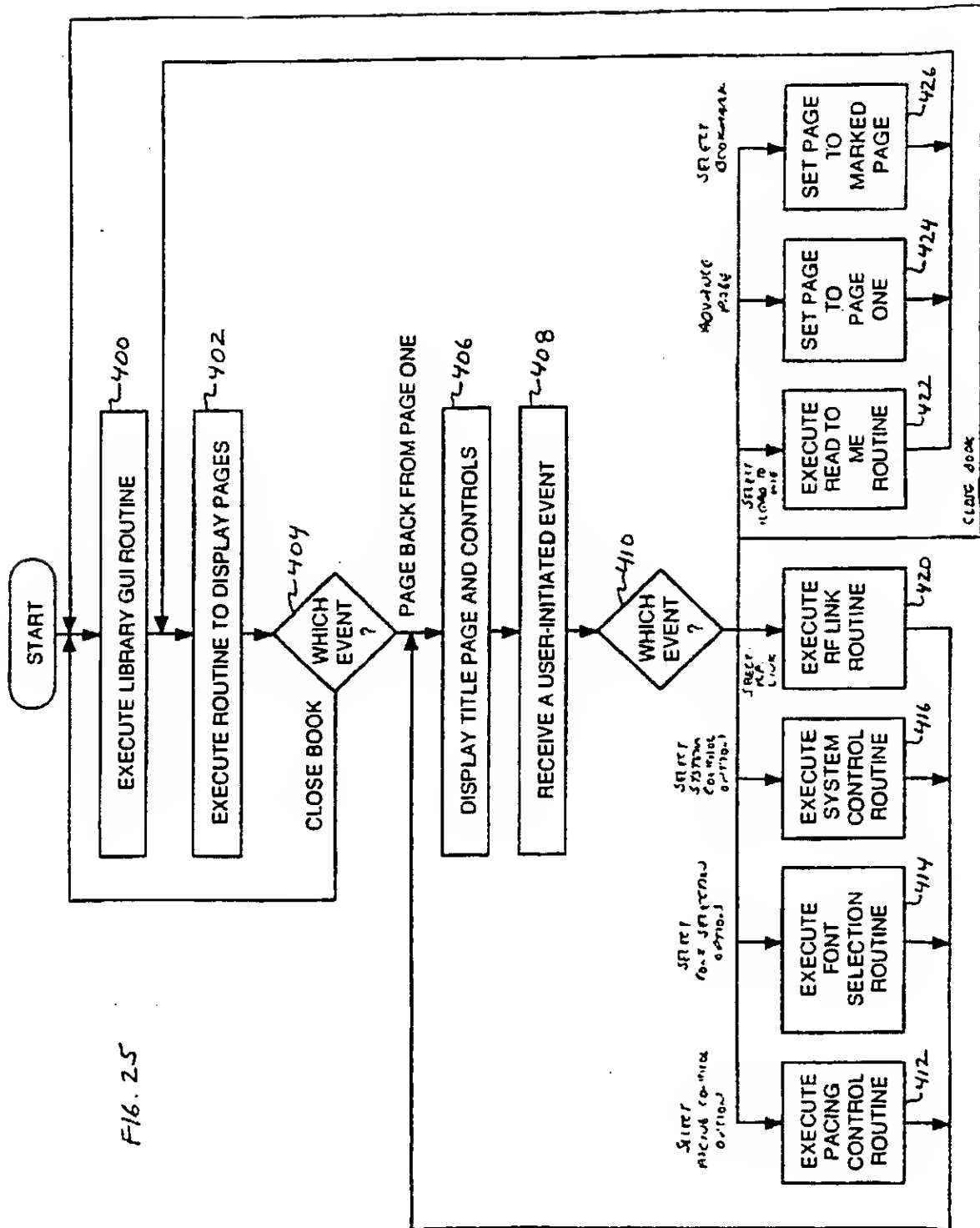


FIG. 24



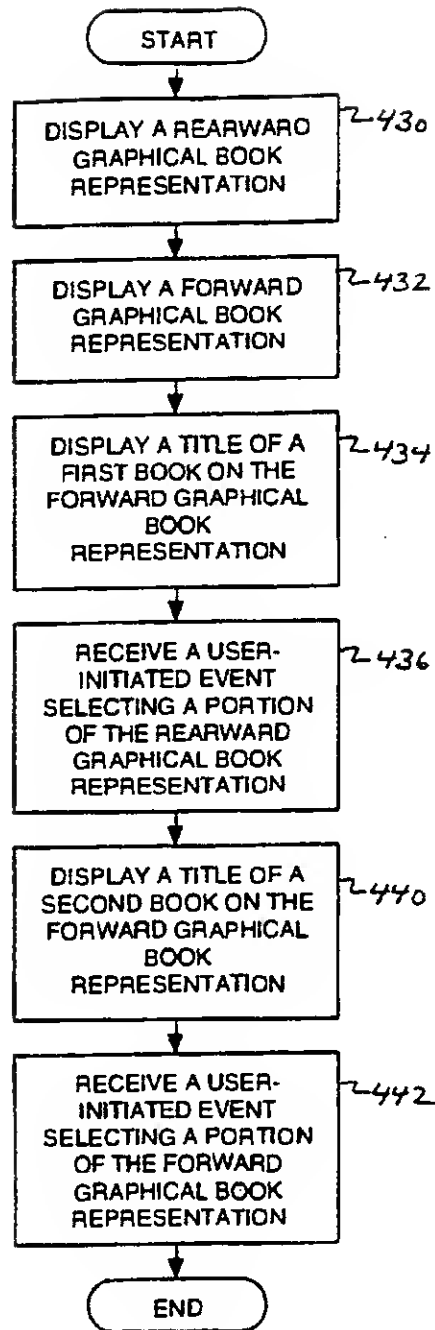
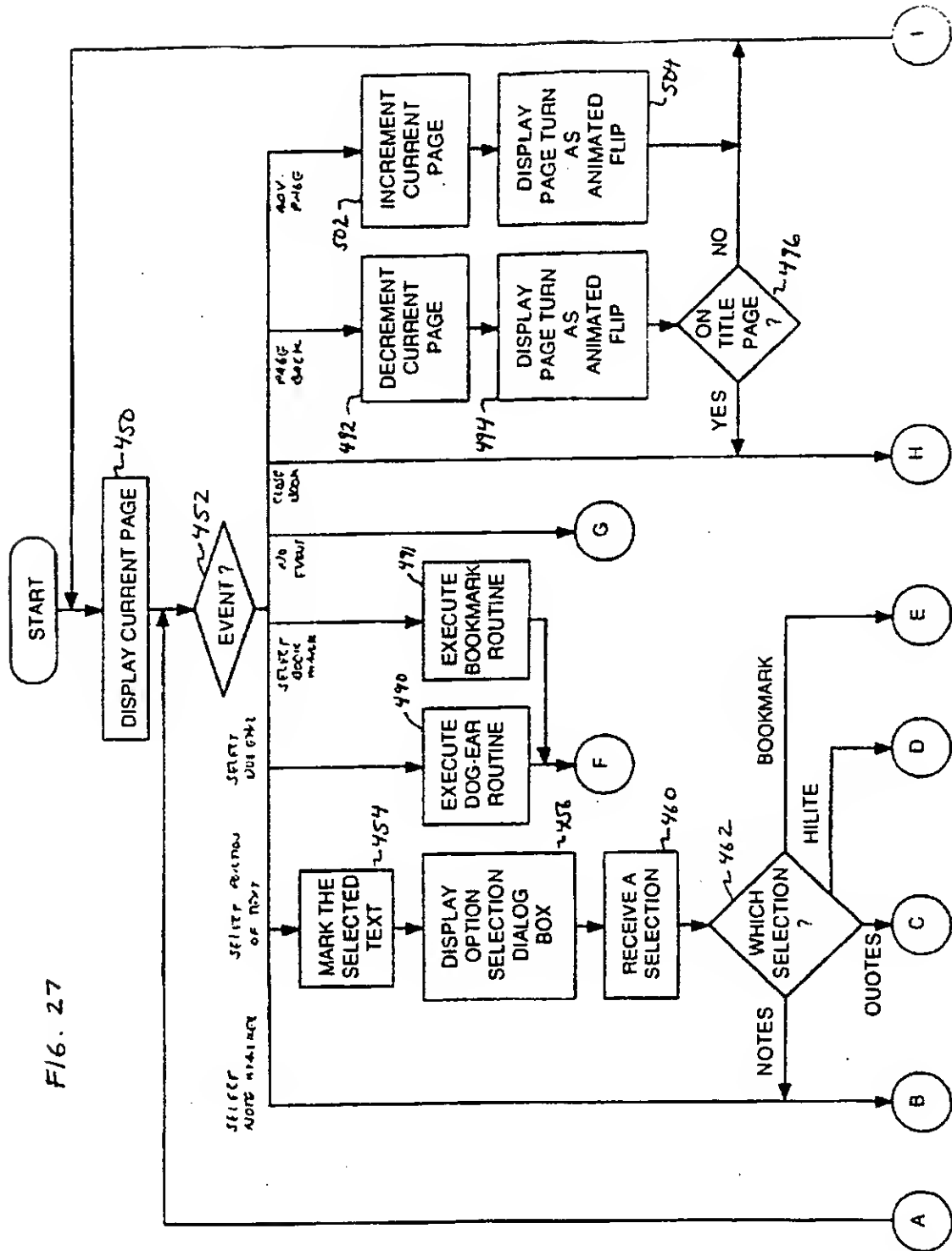


FIG. 26



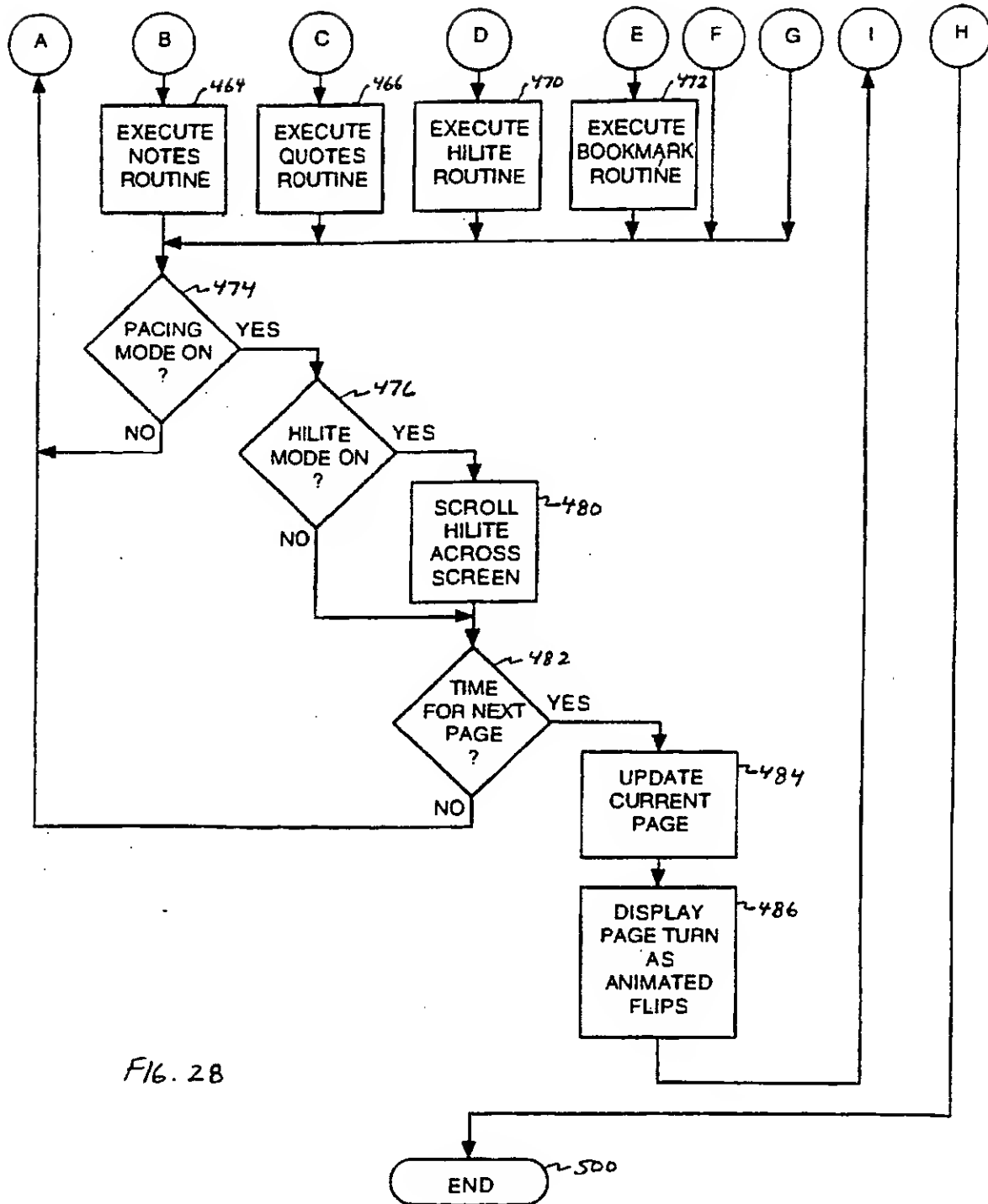
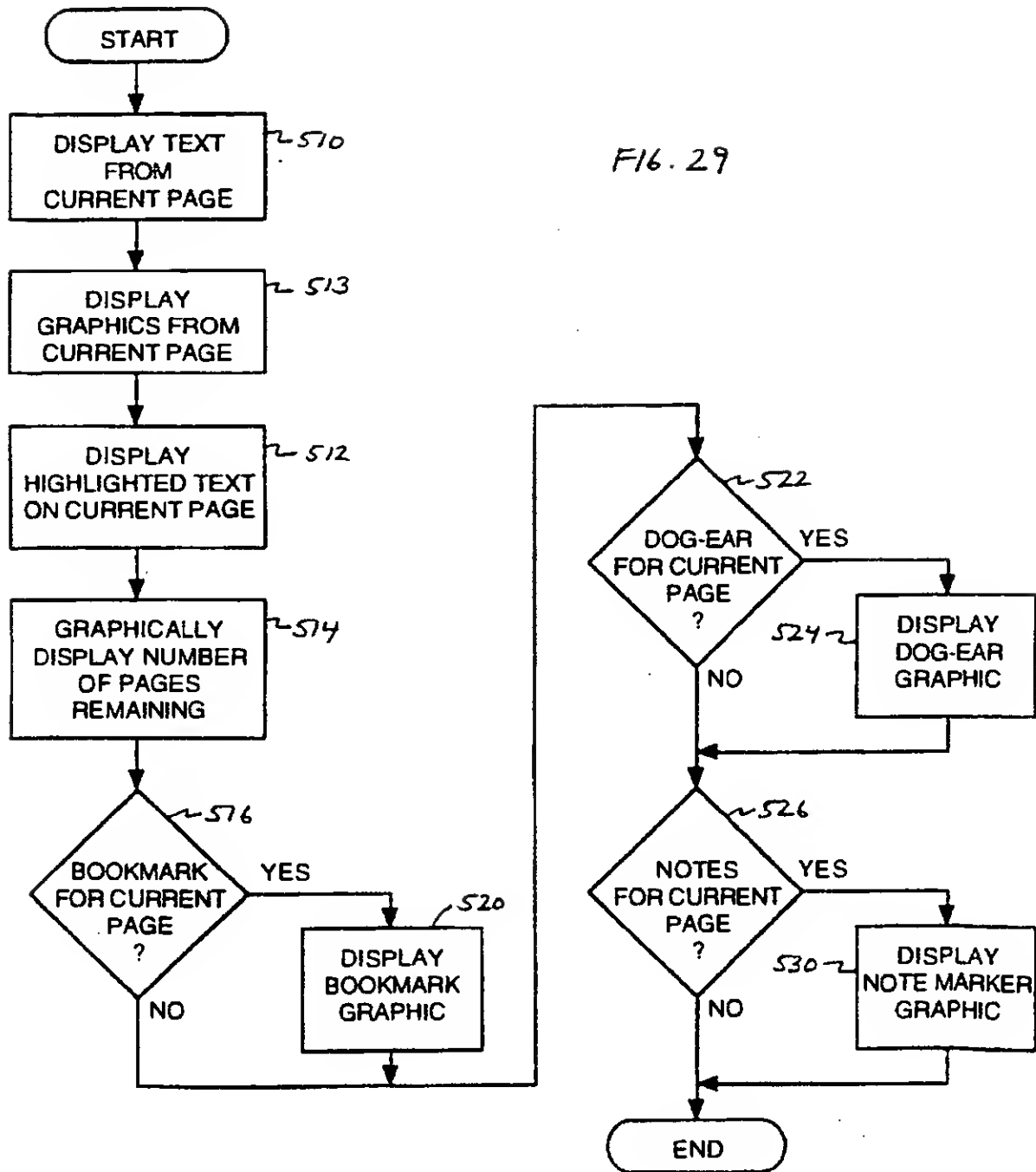
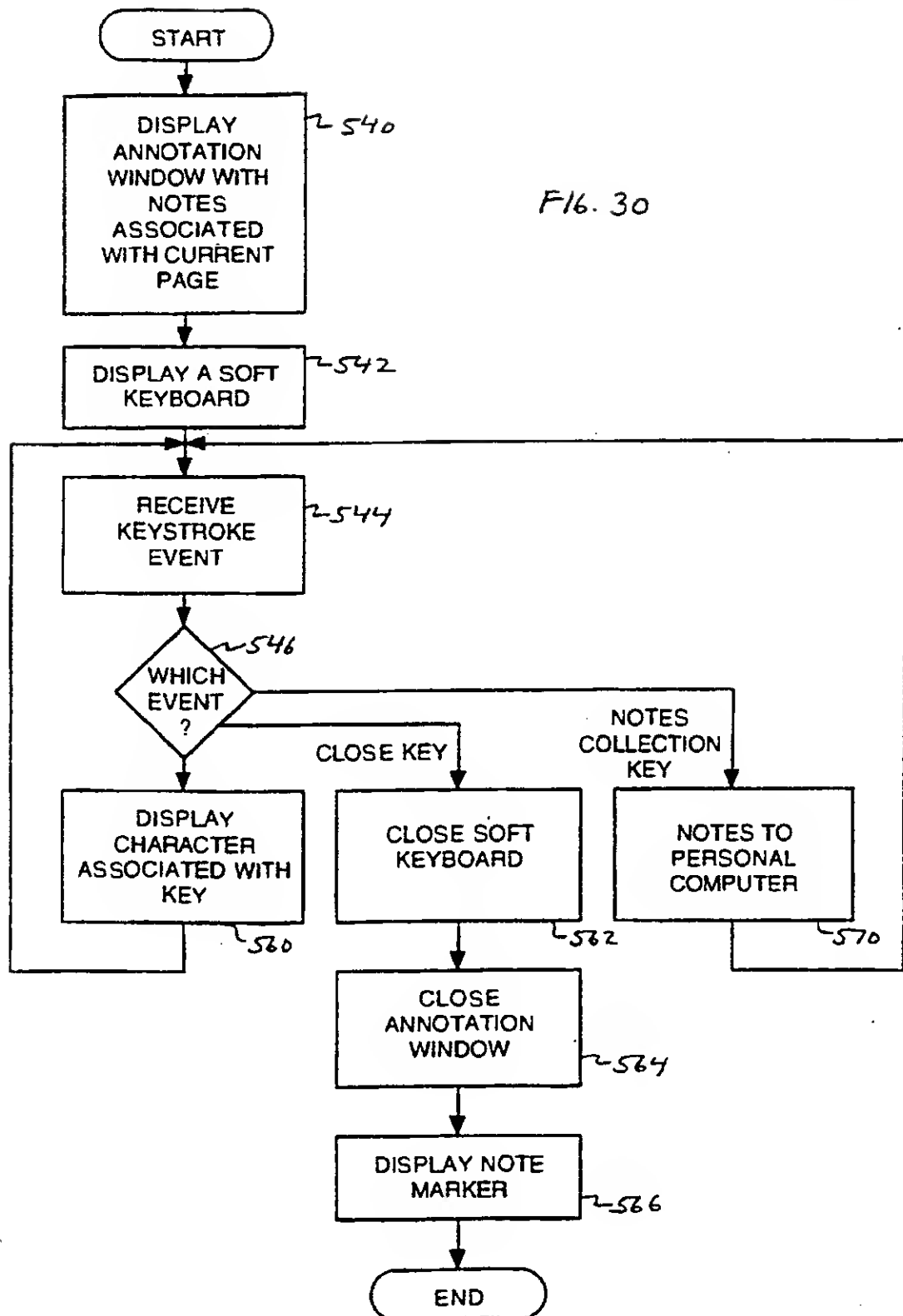


FIG. 28





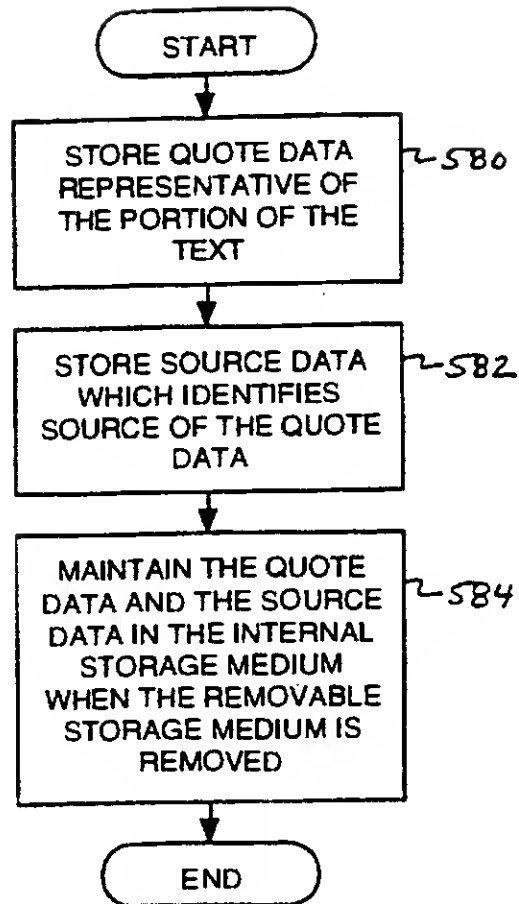
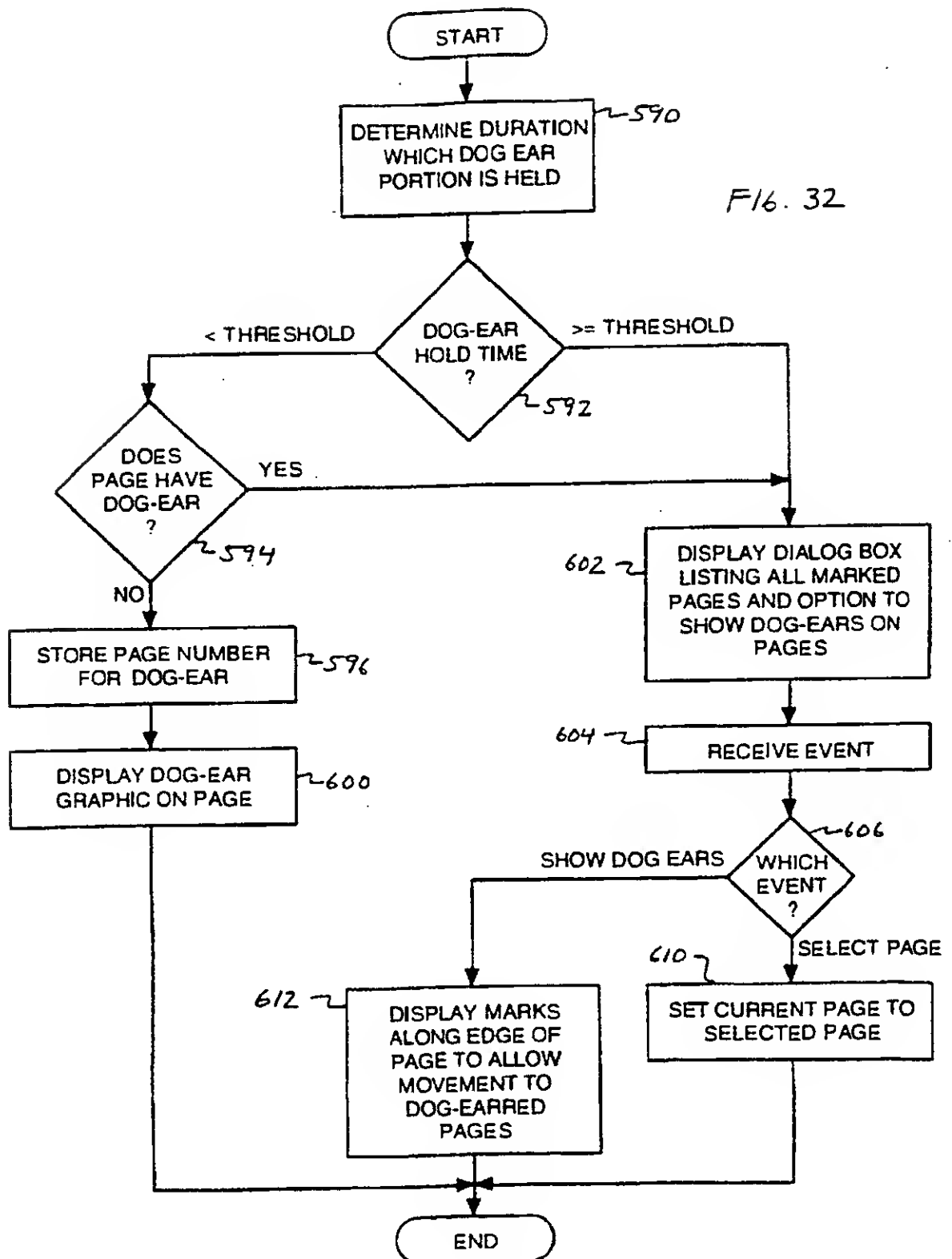
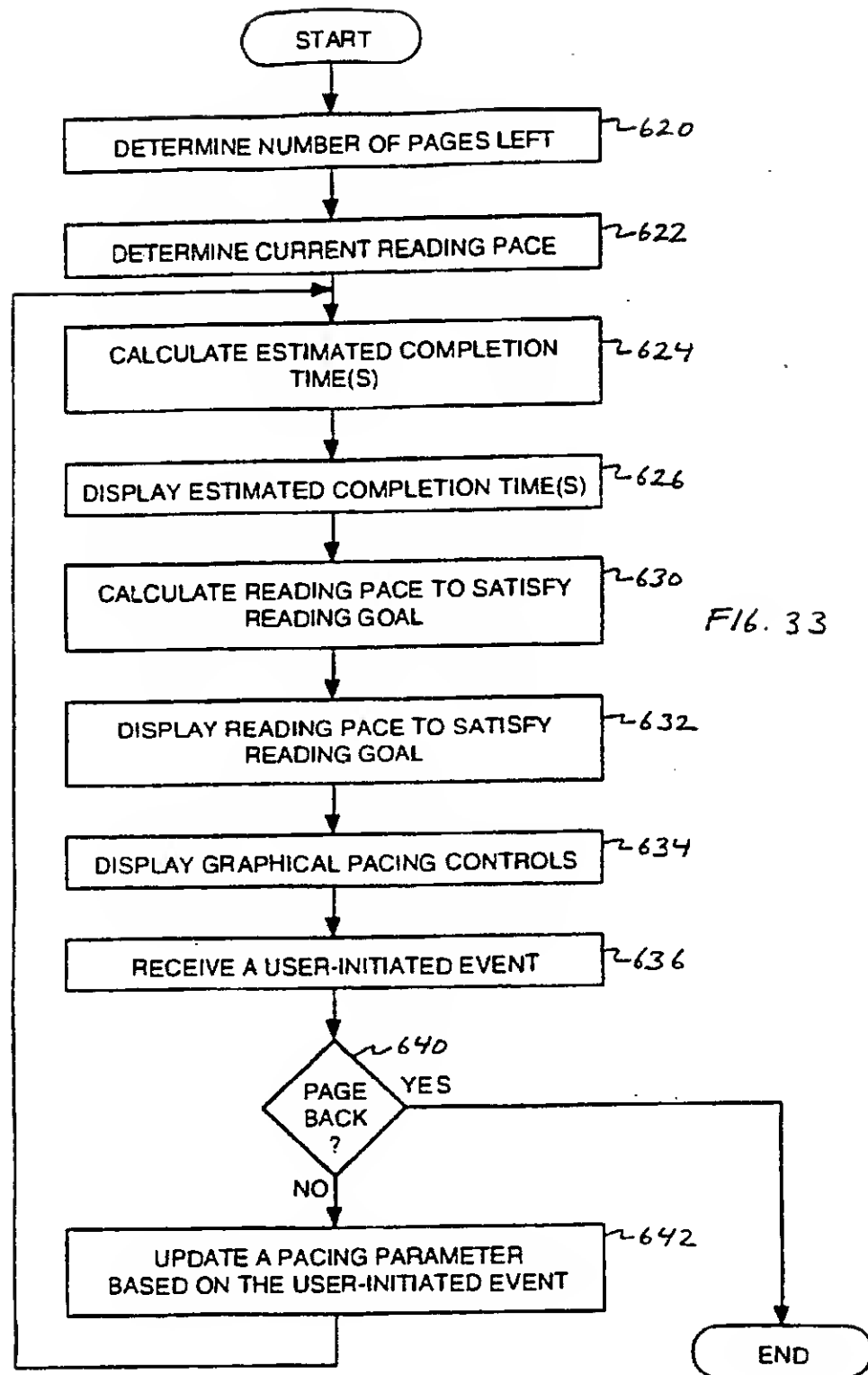
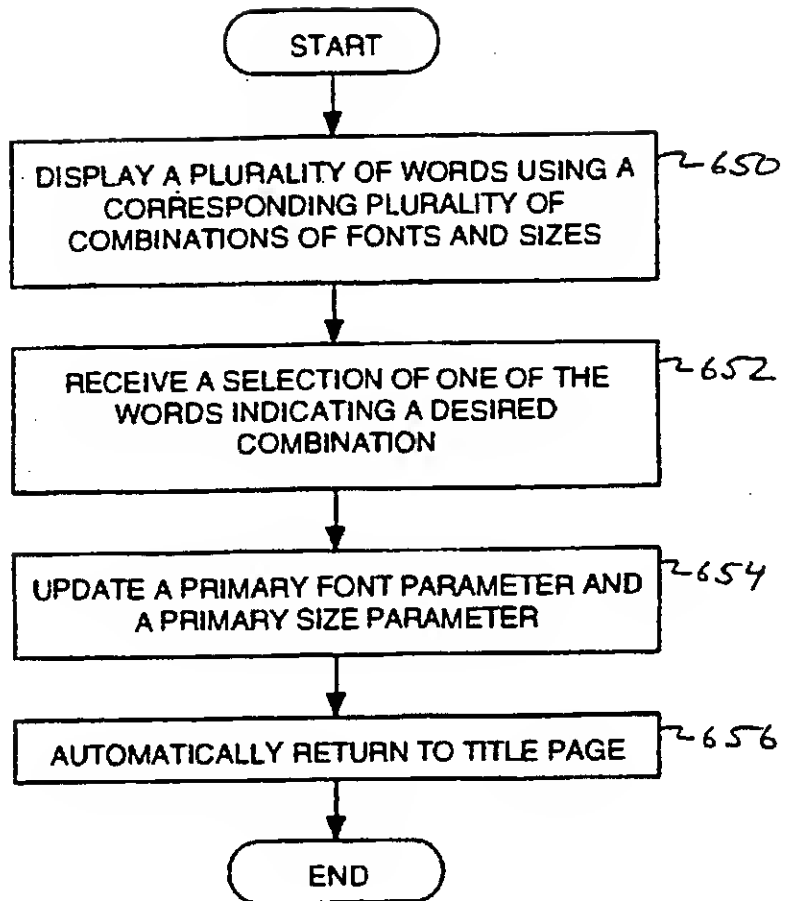


FIG. 31









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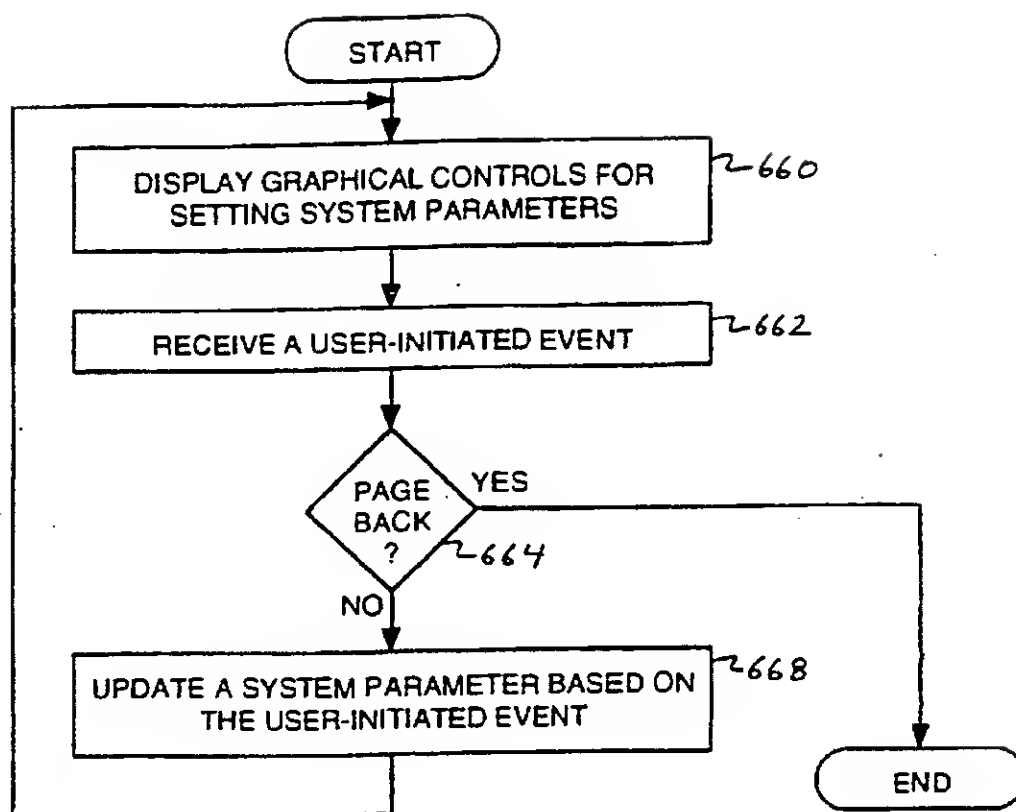


FIG. 35

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US96/19711

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : G06F 17/21

US CL : 345/901

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 395/788, 792, 793; 345/901, 121

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS, DIALOG, MAYA

search terms: (electronic or paperless)(W)(book or novel)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4,855,725 A (FERNANDEZ) 08 August 1989, col. 2, lines 28-42, col. 3, lines 18-23.	1-10
Y	US 5,475,398 A (YAMAZAKI ET AL.) 12 December 1995, entire document, especially col. 1, line 35 to col. 2, line 15.	1-10
Y	Wright, Fred Jr., A retiree who has spent a lifetime tinkering with electronics has dreamed up a device to read computrized books, Tampa Tribune, 26 August 1995, entire document, especially first paragraph.	1-10
Y	Crowninshield software and attica cybernetics announce mediabase windows: first interface for multimedia cd-roms to run under microsoft windows 3.0, News Release, 22 May 1990, second paragraph.	1-10

☒ Further documents are listed in the continuation of Box C.
 ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*E* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubt on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*Z* document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 04 MARCH 1997	Date of mailing of the international search report 16 APR 1997
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer GAIL O. HAYES <i>John White</i>
Facsimile No. (703) 305-3230	Telephone No. (703) 305-9711

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US96/19711

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Franklin Electronic Publishers: Is focusing its future on relatively inexpensive devices to look up reference material, Wall Street Journal, 25 May 1993, p. B4, entire document.	1-10
Y	US 5,321,609 A (YIANILOS ET AL.) 14 June 1994, cols. 1 and 2.	1-10
Y,P	US 5,523,775 A (CAPPS) 04 June 1996, col. 1, lines 13-41, col. 4, lines 43-53.	3
Y	US 5,119,079 A (HUBE ET AL.) 02 June 1992, cols. 1 and 2.	3
Y	US 4,914,624 A (DUNTHORN) 03 April 1990, col. 1, lines 44-66.	3
Y	US 5,404,458 A (ZETTS) 04 April 1995, col. 1, line 23 to col. 2, line 21.	3